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THE ABRIDGMENT
1916

CONTAINING THE ANNUAL MESSAGE OF THE PRESIDENT OF THE UNITED STATES TO THE TWO HOUSES OF CONGRESS

64TH CONGRESS, 2D SESSION

WITH REPORTS OF DEPARTMENTS AND SELECTIONS FROM ACCOMPANYING PAPERS

IN TWO VOLUMES

VOL. I

COMPILED AND EDITED UNDER THE DIRECTION OF THE JOINT COMMITTEE ON PRINTING IN COMPLIANCE WITH SECTION 73 OF THE ACT APPROVED JANUARY 12, 1895

OHIO STATE UNIVERSITY

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ANNUAL ADDRESS (MESSAGE) OF THE PRESIDENT.

GENTLEMEN OF THE CONGRESS:

In fulfilling at this time the duty laid upon me by the Constitution of communicating to you from time to time information of the state of the Union and recommending to your consideration such legislative measures as may be judged necessary and expedient I shall continue the practice, which I hope has been acceptable to you, of leaving to the reports of the several heads of the executive departments the elaboration of the detailed needs of the public service and confine myself to those matters of more general public policy with which it seems necessary and feasible to deal at the present session of the Congress.

I realize the limitations of time under which you will necessarily act at this session and shall make my suggestions as few as possible; but there were some things left undone at the last session which there will now be time to complete and which it seems necessary in the interest of the public to do at once.

In the first place, it seems to me imperatively necessary that the earliest possible consideration and action should be accorded the remaining measures of the programme of settlement and regulation which I had occasion to recommend to you at the close of your last session in view of the public dangers disclosed by the unaccommodated difficulties which then existed, and which still unhappily continue to exist, between the railroads of the country and their locomotive engineers, conductors, and trainmen.

I then recommended:

First, immediate provision for the enlargement and administrative reorganization of the Interstate Commerce Commission along the lines embodied in the bill recently passed by the House of Representatives and now awaiting action by the Senate; in order that the Commission may be enabled to deal with the many great and various duties now devolving upon it with a promptness and thoroughness which are, with its present constitution and means of action, practically impossible.

Second, the establishment of an eight-hour day as the legal basis alike of work and of wages in the employment of all railway employees who are actually engaged in the work of operating trains in interstate transportation.

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Third, the authorization of the appointment by the President of a small body of men to observe the actual results in experience of the adoption of the eight-hour day in railway transportation alike for the men and for the railroads.

Fourth, explicit approval by the Congress of the consideration by the Interstate Commerce Commission of an increase of freight rates to meet such additional expenditures by the railroads as may have been rendered necessary by the adoption of the eight-hour day and which have not been offset by administrative readjustments and economies, should the facts disclosed justify the increase.

Fifth, an amendment of the existing federal statute which provides for the mediation, conciliation, and arbitration of such controversies as the present by adding to it a provision that, in case the methods of accommodation now provided for should fail, a full public investigation of the merits of every such dispute shall be instituted and completed before a strike or lockout may lawfully be attempted.

And, sixth, the lodgement in the hands of the Executive of the power, in case of military necessity, to take control of such portions and such rolling stock of the railways of the country as may be required for military use and to operate them for military purposes, with authority to draft into the military service of the United States such train crews and administrative officials as the circumstances require for their safe and efficient use.

The second and third of these recommendations the Congress immediately acted on: it established the eight-hour day as the legal basis of work and wages in train service and it authorized the appointment of a commission to observe and report upon the practical results, deeming these the measures most immediately needed; but it postponed action upon the other suggestions until an opportunity should be offered for a more deliberate consideration of them. The fourth recommendation I do not deem it necessary to renew. The power of the Interstate Commerce Commission to grant an increase of rates on the ground referred to is indisputably clear and a recommendation by the Congress with regard to such a matter might seem to draw in question the scope of the Commission's authority or its inclination to do justice when there is no reason to doubt either.

The other suggestions,—the increase in the Interstate Commerce Commission's membership and in its facilities for performing its manifold duties, the provision for full public investigation and assessment of industrial disputes, and the grant to the Executive of the power to control and operate the railways when necessary in time of war or other like public necessity,—I now very earnestly renew.

The necessity for such legislation is manifest and pressing. Those who have entrusted us with the responsibility and duty of serving and safeguarding them in such matters would find it hard, I believe,

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to excuse a failure to act upon these grave matters or any unnecessary postponement of action upon them.

Not only does the Interstate Commerce Commission now find it practically impossible, with its present membership and organization, to perform its great functions promptly and thoroughly but it is not unlikely that it may presently be found advisable to add to its duties still others equally heavy and exacting. It must first be perfected as an administrative instrument.

The country cannot and should not consent to remain any longer exposed to profound industrial disturbances for lack of additional means of arbitration and conciliation which the Congress can easily and promptly supply. And all will agree that there must be no doubt as to the power of the Executive to make immediate and uninterrupted use of the railroads for the concentration of the military forces of the nation wherever they are needed and whenever they are needed.

This is a programme of regulation, prevention, and administrative efficiency which argues its own case in the mere statement of it. With regard to one of its items, the increase in the efficiency of the Interstate Commerce Commission, the House of Representatives has already acted; its action needs only the concurrence of the Senate.

I would hesitate to recommend, and I dare say the Congress would hesitate to act upon the suggestion should I make it, that any man in any occupation should be obliged by law to continue in an employment which he desired to leave. To pass a law which forbade or prevented the individual workman to leave his work before receiving the approval of society in doing so would be to adopt a new principle into our jurisprudence which I take it for granted we are not prepared to introduce. But the proposal that the operation of the railways of the country shall not be stopped or interrupted by the concerted action of organized bodies of men until a public investigation shall have been instituted which shall make the whole question at issue plain for the judgment of the opinion of the nation is not to propose any such principle. It is based upon the very different principle that the concerted action of powerful bodies of men shall not be permitted to stop the industrial processes of the nation, at any rate before the nation shall have had an opportunity to acquaint itself with the merits of the case as between employee and employer, time to form its opinion upon an impartial statement of the merits, and opportunity to consider all practicable means of conciliation or arbitration. I can see nothing in that proposition but the justifiable safeguarding by society of the necessary processes of its very life. There is nothing arbitrary or unjust in it unless it be arbitrarily and unjustly done. It can and should be done with a full and scrupulous regard for the interests and liberties of all concerned as well as for the permanent interests of society itself.

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Three matters of capital importance await the action of the Senate which have already been acted upon by the House of Representatives: the bill which seeks to extend greater freedom of combination to those engaged in promoting the foreign commerce of the country than is now thought by some to be legal under the terms of the laws against monopoly; the bill amending the present organic law of Porto Rico; and the bill proposing a more thorough and systematic regulation of the expenditure of money in elections, commonly called the Corrupt Practices Act. I need not labor my advice that these measures be enacted into law. Their urgency lies in the manifest circumstances which render their adoption at this time not only opportune but necessary. Even delay would seriously jeopard the interests of the country and of the government.

Immediate passage of the bill to regulate the expenditure of money in elections may seem to be less necessary than the immediate enactment of the other measures to which I refer; because at least two years will elapse before another election in which federal offices are to be filled; but it would greatly relieve the public mind if this important matter were dealt with while the circumstances and the dangers to the public morals of the present method of obtaining and spending campaign funds stand clear under recent observation and the methods of expenditure can be frankly studied in the light of present experience; and a delay would have the further very serious disadvantage of postponing action until another election was at hand and some special object connected with it might be thought to be in the mind of those who urged it. Action can be taken now with facts for guidance and without suspicion of partisan purpose.

I shall not argue at length the desirability of giving a freer hand in the matter of combined and concerted effort to those who shall undertake the essential enterprise of building up our export trade. That enterprise will presently, will immediately assume, has indeed already assumed, a magnitude unprecedented in our experience. We have not the necessary instrumentalities for its prosecution; it is deemed to be doubtful whether they could be created upon an adequate scale under our present laws. We should clear away all legal obstacles and create a basis of undoubted law for it which will give freedom without permitting unregulated license. The thing must be done now, because the opportunity is here and may escape us if we hesitate or delay.

The argument for the proposed amendments of the organic law of Porto Rico is brief and conclusive. The present laws governing the Island and regulating the rights and privileges of its people are not just. We have created expectations of extended privilege which we have not satisfied. There is uneasiness among the people of the Island and even a suspicious doubt with regard

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to our intentions concerning them which the adoption of the pending measure would happily remove. We do not doubt what we wish to do in any essential particular. We ought to do it at once.

At the last session of the Congress a bill was passed by the Senate which provides for the promotion of vocational and industrial education which is of vital importance to the whole country because it concerns a matter, too long neglected, upon which the thorough industrial preparation of the country for the critical years of economic development immediately ahead of us in very large measure depends. May I not urge its early and favourable consideration by the House of Representatives and its early enactment into law? It contains plans which affect all interests and all parts of the country and I am sure that there is no legislation now pending before the Congress whose passage the country awaits with more thoughtful approval or greater impatience to see a great and admirable thing set in the way of being done.

There are other matters already advanced to the stage of conference between the two Houses of which it is not necessary that I should speak. Some practicable basis of agreement concerning them will no doubt be found and action taken upon them.

Inasmuch as this is, Gentlemen, probably the last occasion I shall have to address the Sixty-fourth Congress, I hope that you will permit me to say with what genuine pleasure and satisfaction I have cooperated with you in the many measures of constructive policy with which you have enriched the legislative annals of the country. It has been a privilege to labour in such company. I take the liberty of congratulating you upon the completion of a record of rare serviceableness and distinction.

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REPORT OF THE SECRETARY OF THE TREASURY.

ANNUAL REPORT ON THE FINANCES.

TREASURY DEPARTMENT,
Washington, December 4, 1916.

SIR: I have the honor to make the following report:

During the past year the prosperity which set in so strongly during the fiscal year 1915 has grown in strength and volume and is now widely diffused throughout the United States. Fundamental economic conditions have never been more sound. In all lines of industry efficiency of organization and production have reached the highest point in the country's history. General confidence in the future, healthful enterprise and development have been marked characteristics of the year.

The financial strength of the United States—the greatest in our history—gives us a commanding position in world finance. We have been transformed from a debtor into a creditor nation. On November 1, 1916, the stock of gold coin and bullion in the United States was estimated at $2,700,136,976, an increase of $714,597,804 in the past 16 months. This is the largest stock of gold ever held in the United States or in any other country of the world. Through the operations of the Federal Reserve System and with our abundant supply of gold as a basis, the credit resources of the United States have become more than sufficient for home demand, and we have been able to finance our great domestic and foreign trade without strain and to extend vast amounts of credit to other nations throughout the world.

THE FEDERAL RESERVE SYSTEM.

The experience of the past two years has brought into strong relief the value of the Federal Reserve System. It is not too much to say that our great prosperity could not exist without it. The usefulness of the system has been broadened recently by the amendatory act of September 7, 1916, which renders it more attractive to member banks and increases the scope and services of the Federal reserve banks. Due to the transference of vault and other reserves to Federal reserve banks, authorized by the original act and the amendatory act, the resources of said banks are now more than $650,000,000, while the

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total reserves held are over $400,000,000, and, in addition, more than $230,000,000 is held by Federal reserve agents as special security against Federal reserve notes. About one-fourth of the country's stock of gold is thus mobilized in the hands of the Federal reserve banks and agents.

The increasing strength and efficiency of the Federal reserve banks have enabled them to enlarge their direct service to the business community through the introduction of a definite and comprehensive system for the par clearance of checks throughout the country.

Rates of discount at Federal reserve banks have continued low throughout the year, and most of their open-market paper, consisting largely of acceptances growing out of foreign trade, has been taken below a 2½ per cent basis. Rates of interest throughout the country have been reduced and stabilized with great advantage to the business of the country.

It would have been impossible to finance our vast domestic and foreign trade without the facilities provided by the Federal Reserve System. Not only has it met the normal and extraordinary needs of business, but it has established confidence securely. Business has been able to go forward without apprehension and the several crises which the country has faced in its international relations during the past two years have been accompanied by no disturbances and have caused not even a tremor in the financial world. The crops of 1915 and 1916 were financed without difficulty and to the great advantage of the farmers, and the industrial troubles which at one time seemed imminent, because of the threatened railway strike last summer, were not accompanied by the slightest financial uneasiness. Happily the country has been at peace and business and enterprise have had the largest opportunity for favorable development under the most auspicious conditions.

If we make intelligent use of our great power and exceptional financial resources, we can cope successfully with any conditions the future may develop.

THE FEDERAL FARM LOAN ACT.

The farmers of the United States have suffered more than any other class of our people from a lack of essential credits, both short and long time, to carry on their business properly. Until the passage of the Federal reserve act on December 23, 1913, it was extremely difficult for the farmer to finance his requirements for producing, harvesting and marketing his crops, and for maturing or fattening his live stock for market. The Federal reserve act expressly recognized agricultural or farmers' paper and put it on an equality with the best commercial paper—giving it, in fact, an advantage over commercial paper by making agricultural paper of six months' ma-

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turity, or less, eligible for rediscount by Federal reserve banks, while commercial paper with a maturity longer than 90 days is ineligible for rediscount by Federal reserve banks.

What has been accomplished by this provision of the Federal reserve act is this: The six months' note of the farmer, given for any of the purposes described, is now among the most liquid of the assets of a national bank. Therefore, properly secured farm paper should be as much in demand as properly secured commercial paper, and the rate of interest on the one should not be relatively higher than the rate of interest on the other. Nor should there be any lack of available credit for the farmer under the Federal Reserve System, because the local banks may now lend to the farmer in excess of their cash resources by rediscounting or selling to the Federal reserve bank of their district eligible farm paper—thus constantly replenishing their resources and thereby enabling them to meet the legitimate demands that may be made upon them. It is by this means that we have secured, under the Federal reserve act, an elastic system of credit and currency which is automatically responsive to the needs of business and agriculture. As evidence of the value of this provision of the Federal reserve act, it is estimated that during the fiscal year ended June 30, 1916, about one-half of all the paper rediscounted by the member banks with the 12 Federal reserve banks of the country was agricultural paper.

The Federal reserve act also conferred upon national banks a power they had never before possessed, namely, to make loans on farm mortgages not exceeding five years in length. This makes it possible for the national banks of the United States to lend over $500,000,000 on such short-term farm mortgages. Reports to the Comptroller of the Currency show that on June 30, 1916, the national banks of the country had lent $45,737,000 to farmers on mortgages of this character.

While the Federal reserve act admirably met the needs of the farmer for short-time credits for the various purposes of agriculture and for farm mortgages not exceeding five-year maturities, it did not and could not provide for the long-time amortization farm loans which are so bady needed for the development of the farming industry of the country. Therefore it was that on July 17, 1916, the Federal farm loan law was enacted, establishing a bureau in the Treasury Department under the charge of the Federal Farm Loan Board. The act provides for a board of five members, of which the Secretary of the Treasury is a member ex officio and chairman, and the remaining four members are appointed by the President by and with the advice and consent of the Senate. The President appointed George W. Norris, of Philadelphia, Pa.; Herbert Quick, of Berkeley Springs, W. Va.; William S. A. Smith, of Sioux City, Iowa; and Charles E.

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Lobdell, of Great Bend, Kans., members of the board and designated Mr. Norris as Farm Loan Commissioner for the period of one year. These gentlemen qualified and took office on August 6, 1916, and selected W. W. Flannagan, of Montclair, N. J., as secretary. Permanent quarters have been assigned to the board in the Treasury Department building.

The board is directed by the act to divide the country into 12 districts and to locate in each a Federal land bank. Each bank is to have a capital stock of $750,000. The stock is to be offered first to the public. The Government will subscribe all or any part of the stock which may not be taken by the public.

Soon after its organization the board commenced holding public hearings in the different States for the purpose of securing the fullest possible information to enable it to determine intelligently the boundaries of the 12 Federal land bank districts and the location of a Federal land bank in each district. At the time of writing this report (Nov. 11, 1916) hearings have been held in the following States:

Maine,	Oregon.	New Jersey.
New Hampshire,	California,	Pennsylvania,
Connecticut,	Nevada,	Maryland,
Massachusetts,	Utah,	Virginia,
New York,	Wyoming,	North Carolina,
Michigan,	Colorado,	South Carolina,
Wisconsin,	Kansas,	Florida,
Iowa,	Missouri,	Georgia,
South Dakota,	Nebraska,	Alabama,
Minnesota,	Illinois,	Louisiana,
North Dakota,	Indiana,	Mississippi,
Montana,	Kentucky,	Tennessee.
Washington,	Ohio,	

These hearings will be continued until all parts of the United States have been visited by the board. A comprehensive and careful study of the farm loan needs of the country is being made, and it is expected that the board will be able to render its decision as to the boundaries of the districts and the locations of the banks, and to establish the banks themselves in the early part of the year 1917.

The Federal farm loan act creates a system under which the farmers of the country will be able to borrow money on farm mortgages at low rates of interest and on long time, namely, from 5 to 40 years, and by means of small annual installments to retire or repay the entire principal and interest within the period of the loan. Thus the Federal reserve act and the Federal farm loan act have covered the entire field of farm credits, the former by providing the short-time loans needed by the farmer and the latter by furnishing the

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long-time amortization loans which are essential to the full and free development of agriculture, in so far as credit is necessary to such development.

The hearings already held by the Federal Farm Loan Board have shown conclusively the necessity for this form of long-time agricultural credit; they have shown that agricultural development and productivity have been hampered and restricted for lack of such credits; they have shown that the farmer has been the victim not alone of high but of extortionate rates of interest in almost every part of the country, and that he has been helpless in the face of these conditions; they have shown that the want of long-time farm credits at low rates of interest have constantly increased the evils of farm tenancy by making it difficult, if not impossible, for men of small means to become farm owners; they have shown that small farmers who want to borrow $1,000 or less on farm mortgages are unable to borrow on any terms, as there are few, if any, institutions or lenders who will take small loans of this character.

Under the Federal farm loan act these handicaps will be removed and long-time farm credits, ranging from 5 to 40 years, will be available throughout the country at low rates of interest, not exceeding 6 per cent, and these credits will be as accessible to the small farmer as to the big farmer and on equal terms. It seems quite probable that when the Federal land banks are in full operation loans may be made on properly secured farm mortgages, under the act, at not more than 4½ per cent interest per annum, with an additional payment on account of the principal of not exceeding 1 per cent per annum. On this basis the farmer will be able to borrow money on properly secured farm mortgages at 5½ per cent per annum, which will cover not only the interest on the loan but a 1 per cent annual amortization payment, and in 35 years completely extinguish the principal of his loan. It is impossible to estimate the beneficial effects this new system of farm credits will have upon the development of the farming industry, the prosperity of the farmer, and the general prosperity of the entire country.

The Federal Farm Loan Board will, under the provisions of the act, file in due season an annual report to the Congress.

BANKS.

The deposits of the 7,589 national banks of the United States on September 12, 1916, reached the unprecedented total of $11,362,341,000, and on the same date their actual cash holdings amounted to $845,185,000. The 12 Federal reserve banks held $329,253,000 in cash on November 12, 1915, which amount was largely increased during the year, being $414,148,000 on November 10, 1916.

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The circulation of the national banks secured by the deposit of United States bonds with the Treasurer of the United States decreased from $722,754,924 to $679,650,913 during the year ended November 1, 1916. This decrease of $43,104,011 was due principally, if not exclusively, to the purchase of bonds available as security for circulation by the Federal reserve banks under the provisions of the Federal reserve act.

Bank clearings are one of the most sensitive and reliable indications of business conditions. The totals of clearings for the last six fiscal years are given in the following table:

July 1, 1910, to June 30, 1911	$157,664,101,000
July 1, 1911, to June 30, 1912	166,081,127,000
July 1, 1912, to June 30, 1913	174,211,066,000
July 1, 1913, to June 30, 1914	169,040,562,000
July 1, 1914, to June 30, 1915	[1] 152,891,985,000
July 1, 1915, to June 30, 1916	224,338,270,000

GOVERNMENT FUNDS AND FEDERAL RESERVE BANKS.

By virtue of the authority of the Federal reserve act I designated the 12 Federal reserve banks Government depositaries and fiscal agents, effective January 1, 1916, and discontinued the national-bank depositaries in the Federal reserve cities, except one or in some cases two in each city which were retained as depositaries for post-office and court moneys. It is a question whether or not such post-office and court moneys constitute Government funds in the sense that the term is used in the Federal reserve act authorizing the deposit of public funds in the Federal reserve banks. Nearly $7,000,000 was deposited in these banks at the outset and the Government's balance with them increased until on July 8, 1916, the books of the Treasurer showed that the reserve banks held $114,930,023.03. A large part of this consisted of income-tax collections due June 30, but this balance has been reduced largely since that date in the normal course of the Government's operations.

CONVERSION OF UNITED STATES BONDS.

During the year $56,648,902.50 was received from national banks for retirement of circulation under the act of July 14, 1890, and was, in accordance with the provisions of that act, credited as public-debt receipts; retirement or redemption to the amount of $24,633,010.50 was made and was charged as public-debt disbursements. The large amount deposited for retirement was largely the result of purchases by the Federal reserve banks of 2 per cent United States bonds carrying the circulation privilege from the national banks under the provisions of the Federal reserve act. On February 28, 1916, I notified the Federal Reserve Board that under section 18 of the Federal

[1] The European war commenced shortly after the beginning of this fiscal year.

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reserve act I would issue to the Federal reserve banks 30-year 3 per cent gold bonds and 1-year 3 per cent gold notes, both without the circulation privilege, in exchange for an amount not exceeding $30,000,000 United States 2 per cent bonds so purchased, an obligation to be accepted from the Federal reserve banks binding them to purchase an equal amount of the 1-year notes for gold at maturity. The 1st days of January, April, July, and October were set as the conversion dates corresponding to the interest periods for the 2 per cent consols of 1930. I subsequently notified the Federal Reserve Board that the Federal reserve banks would be required to convert their securities in the relative amounts of the new issues indicated by the law, i. e., practically 50 per cent in the 1-year notes and 50 per cent in the 30-year bonds. The whole of the $30,000,000 has been converted, $15,761,000 3 per cent bonds and $14,239,000 1-year Treasury notes being issued in exchange therefor.

INTEREST ON GOVERNMENT DEPOSITS IN NATIONAL-BANK DEPOSITARIES.

During the year 1916 no deposits for crop-moving purposes were made, nor were they necessary in view of the large credit facilities provided by the Federal Reserve System, which has proven sufficient to meet the demands of agriculture and business. This accounts in part for the decrease in the amount of interest received from Government depositaries as compared with the previous year. Besides this the balances in the national-bank depositaries were reduced because of the transfer of funds to the Federal reserve banks. Nevertheless the interest collected on deposits of public funds for the fiscal year 1916 and covered into the Treasury as a miscellaneous receipt amounted to $791,671.45. The amount of interest received on public deposits for the past six fiscal years is as follows:

1911	$41,757.53
1912	44,462.26
1913	122,218.89
1914	1,409,426.07
1915	1,222,706.93
1916	791,671.45
Total 1913 to 1916	3,546,023.34

The increase in the amount of interest collected since 1913 is due to the fact that beginning with June of that year interest has been charged upon all public deposits, except those in Federal reserve banks, at the rate of 2 per cent per annum.

NEW COINAGE.

The designs for the subsidiary silver coins now in use were prepared over 25 years ago. During the fiscal year 1916 new designs

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for the dime, quarter dollar, and half dollar were adopted, which, for the first time in the history of our coinage, are different for each denomination. Members of the Commission of Fine Arts were conferred with and noted sculptors were commissioned to prepare and submit models. More than 50 designs were submitted, from which three sets were chosen. The dime is now in general circulation. It is expected that the half and quarter dollars will be in circulation before the holiday season.

The designs of the new coins have been highly praised by those having expert knowledge of such matters. The designs for the dime and half dollar are the work of Mr. Adolph Weinman; the quarter dollar that of Mr. Hermon A. MacNeil.

WAR RISK INSURANCE.

The Bureau of War Risk Insurance commenced operations September 2, 1914, immediately after the outbreak of the European war. It was created to assist commerce in American vessels and to grant war risk, but not maritime, insurance on the hulls of or cargoes in American vessels.

From the commencement of its business to November 17, 1916, the bureau has written 1,684 policies, covering total insurance of $163,595,687. There have been incurred losses to date of $833,924.60, from which salvage of $59,055.87 has been received. This makes the net losses to date $774,868.73, and leaves a surplus of premiums received over losses of $2,367,657.23.

The amount appropriated for the expenses of the bureau in the original act was $100,000. The bureau has been operated economically and the total expenses of organizing, printing, stationery, and the salaries of its force from September 2, 1914, to November 17, 1916, amounted to $39,113.70. On November 17, 1916, the net amount at risk was $14,610,345.

SUMMARY.

Number of policies issued Sept. 2, 1914–Nov. 17, 1916		1,684
Total amount insured		$163,595,687.00
Total amount at risk		14,610,345.00
Known losses to date		833,924.60
Salvage received		59,055.87
Total premiums received	$3,142,525.96	
Net losses paid	774,868.73	
Surplus premiums on hand		2,367,657.23

The Bureau of War Risk Insurance expires by limitation of law on September 2, 1917, having received an extension of one year from the Congress. I earnestly recommend its extension for another year, or until September 2, 1918. If this should not be done and the Congress should not be in session when this act expires (Sept. 2, 1917) it will be impossible to continue the war risk insurance business,

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and if the war in Europe should be in progress at that time, the inability to grant war risk insurance on American vessels and cargoes in American vessels will seriously injure the business and commerce of the country. This is a risk we ought not to take, and I earnestly recommend that the Congress extend the act for another year.

THE PAN AMERICAN FINANCIAL CONFERENCE AND THE INTERNATIONAL HIGH COMMISSION.

As noted in my annual report for 1915, the International High Commission is a body of 20 national sections constituted by the First Pan American Financial Conference, held in Washington, May, 1915, by virtue of the diplomatic and consular appropriation bill, approved March 4, 1915. It was created to adjust and harmonize the principles and procedure of commercial law and fiscal administrative regulations in the American Republics, and to seek a satisfactory solution for such legal problems as present themselves in the field of commerce and public finance. Each section consists of nine jurists or financiers under the chairmanship of the minister of finance. The entire direction of the commission's work is intrusted to a central executive council of three members. At its meeting in Buenos Aires, April 3 to 12, 1916, the commission designated Washington as its headquarters for the next two years, thus making the executive officials of the United States section the central executive council. These officers are: The Secretary of the Treasury, president; Hon. John Bassett Moore, vice president; and Dr. L. S. Rowe, secretary general.

Acting upon the suggestion made in my annual report for 1915, the Congress appropriated in the act approved February 7, 1916, $40,000 for the maintenance of the United States section of the International High Commission, and authorized the section to cooperate with the other sections of the commission in taking action upon the recommendations of the First Pan American Financial Conference. This cooperation was to take the form, first, of attendance at the meeting of the commission at Buenos Aires, and, second, to take such steps as should be recommended at that meeting. The appropriation was to be expended under the direction of the Secretary of the Treasury and to remain available until expended. Of the total $18,068.82 has been expended, and the remainder is being expended in carrying on the work.

The meeting of the commission at Buenos Aires will be the subject of a separate report by the United States section of the commission, and consequently there is no occasion to dwell upon its work at this time. It is sufficient to point out that it perfected its organization and adopted a series of practical resolutions, to be carried out under the direction of the central executive council.

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The commission has sought to deal with practical questions in a practical manner. The work that it is doing may be described as of two kinds. With questions of public finance and commercial law it is itself working out and submitting constructive proposals. In the other subjects it is trying to bring about more hearty and persistent cooperation and more effective coordination of effort and resources on the part of those agencies, public and private, within whose province these other subjects fall. The tangible results achieved in the first year's operation of the office of the commission warrant the belief that the method selected for dealing with these problems has been the correct one and gives great promise of success.

Through the creation of the commission the ratification of various technical conventions prepared at earlier Pan American conferences has been greatly hastened and facilitated. The Republic of Costa Rica ratified the patent, trade-mark, and pecuniary claims conventions directly following the meeting of the commission, and other ratifications may be expected shortly. It is exceedingly important that these conventions be ratified because they will assure adequate protection to industrial and literary property and settle disputed claims between governments and alien creditors.

The commission has devised a plan under which commercial travelers may operate freely in all countries signatory to a proposed international treaty on the subject. The various State and municipal fees would be consolidated into one national fee, and the samples carried by commercial travelers would be dispatched more promptly. Both the financial conference and the high commission have laid much stress upon the importance of facilitating the work of these indispensable factors of modern commercial intercourse; and as a result of a resolution adopted at Buenos Aires the Argentine Government is now discussing a legislative measure providing for the federalization of provincial license fees.

The commission has also prepared for consideration a tentative treaty draft providing for the assumption by all signatory powers of an obligation to regard as inviolable an international gold clearance fund which would serve as the basis for international exchange transactions. Thus the physical transfer of gold would be obviated in large measure. The use of dollar exchange would be stimulated by such a system. Closely related with this subject is another point upon which the commission reports a marked advance, viz, an international money of account. This subject has been debated for many years in American conferences. This unit, agreed upon April 10, 1916, will be calculated to have a weight of .33437 grammes and a fineness of .900, or just one-fifth of our own dollar.

The cause of uniform law on commercial paper has been promoted by the commission. Latin America is now committed to the

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uniform Hague rules on bills of exchange, and measures are being taken to secure legislative action thereon. Thus the legal theories valid in this hemisphere will be reduced from a half dozen to two. Moreover, several Republics of commercial importance are now studying our Federal bills-of-lading act and our uniform State act on warehouse receipts as the basis for domestic legislation. Other subjects in commercial law are likewise being studied by the commission with a view to suggesting desirable modifications in existing law.

A natural corollary to the commission's interest in commercial law has been the interest of the United States section in Federal legislation of an advanced character on these subjects. The fullest support was given to the movement in favor of a Federal bills-of-lading act—a movement which for many years had been indorsed by various associations. By the passage of the Federal bills-of-lading act, which goes into effect on January 1, 1917, the Congress has recognized the necessity of safeguarding our foreign commerce by assuring the validity and negotiability of its instruments.

Uniformity of fiscal regulations has been one of the chief interests of this commission. A method has been under advisement for putting into effect a series of resolutions dealing with the classification of merchandise both for statistical and for tariff purposes and with the question of consular documents and regulations. The commission indorsed the uniform statistical classification of Brussels, which would enable customs statistics to be compared with a maximum of accuracy and a minimum of labor and uncertainty. A complete and reliable key to all classification terminology in official use in the American Republics is to be undertaken; this volume, in compact form and in the commercial languages of America, will involve much patient labor, but will be of inestimable value. While the commission realizes that each country must settle for itself questions of tariff rates, it is exceedingly important to the whole commercial world that each country state its rates and schedules in familiar forms in order that uniform statistics may be available to other nations.

The commission earnestly hopes that the numerous postal interests of the American Republics will be coordinated and protected through the establishment of a permanent American postal union. In 1911 a South American Postal Congress was held at Montevideo, and the commission urged the holding of a second congress, this time Pan American, for the purpose of organizing a permanent postal union at Montevideo. Such a body would act as an international clearing house for all postal matters, would draft postal conventions, and would probably bring about universal 2-cent postage in this hemisphere in a short time.

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The commission has lent its cordial support to the movement for the arbitration of commercial disputes between the members of chambers of commerce in Latin America and in the United States. Such agreements will assure certainty of prompt examination and adjustment of disputes, followed by public registration of the decisions, and by thus squarely affecting the credit and standing of the parties to the controversy will secure acceptance of all reasonable awards.

For the first time in any international conference in the world's history an attempt was made to work out a complete, constructive, and cooperative policy of governmental action in the entire field of communications—water, rail, and telegraphic. The value of the commission's recommendations in this connection lies in the fact that they coordinate in a general and comprehensive manner the communication needs of the American Republics. *As to shipping*, the commission followed the course of the first Pan American Financial Conference and urged that action be taken by the Government of the United States to create an international merchant marine, proffering the support of the other American Governments in the carrying out of this task. That they had faith in the efficacy of this method of overcoming the grave disadvantages of economic dependence upon Europe may be seen from the fact that several Latin-American Governments have since considered definite measures themselves looking to the creation of national merchant marines. *As to railway communication*, the commission recommended that the work begun by the Pan American Railway Committee be vitalized and vigorously prosecuted, so as to complete the surveys and estimates required for the intercontinental railway and the other international railroads, which, if not a part of this system, serve to foster commercial relations. *As to telegraphic communication*, the commission favored the organization of an international telegraph service wherever possible on the basis of the European system of transmission and terminal rates, and urged the extension of telegraphic lines.

The work of the International High Commission has been in complete cooperation and harmony with the State Department, whose effective assistance is contributing greatly to the efforts of the commission. The energies of the commission are devoted to financial and commercial problems and do not trench upon the field of diplomacy. The 19 Latin-American Republics which have become interested in the commission have cooperated most heartily, and I am confidant that the national sections appointed by the Latin-American nations and the United States constitute a new and effective piece of international machinery for the furtherance of commercial and financial relations not covered by diplomatic agencies, which will result in stimulating and improving in a marked degree

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trade and friendly relations between the various countries of the Western Hemisphere.

At the meeting of the International High Commission at Buenos Aires, April 3 to 13, 1916, the following resolution was unanimously adopted:

Resolved, That it is highly advantageous that a Pan American Financial Conference of the character of that held in Washington in 1915 meet every two years; that the next Pan American Financial Conference take place in 1917 in Washington, the exact date to be agreed upon subsequently among the various Governments on the initiative of the central executive council of the International High Commission; that the ministers of finance of all the countries of the American Continent be urged to attend in view of the fact that the financial questions there to be discussed constitute the most important problems of these conferences, and in view also of the fact that the presence of these ministers is conducive to the more effective carrying out of the resolutions adopted.

The selection of Washington as the place for the meeting of the Pan American Financial Conference in 1917 was renewed evidence of the good will and friendship of Latin America for the United States. It is proposed that this conference shall consist, as before, of the ministers of finance of the various countries and two other members to be appointed by their respective Governments. I earnestly hope that the Congress will extend again the hospitality of the United States to the Latin-American nations by appropriating for the conference of 1917 an amount equal to that appropriated for the financial conference of 1915, namely, $50,000, for the purpose of entertaining our Latin-American guests on that occasion. I can not overstate the value of these conferences in bringing about a better understanding and promoting in this practical manner friendly relations and enlarging trade and commerce with our southern neighbors.

CUSTOMS.

For the fiscal year ending June 30, 1916, the receipts from customs amounted to $213,185,845.63, an increase over the aggregate receipts for the preceding fiscal year of $3,399,173.42. The imports for this fiscal year amounted to $2,197,883,510, which is an increase over the preceding fiscal year of approximately $484,000,000. The value of the exports for this period was $4,333,658,865, an increase in exports over the previous year of $2,768,589,340.

The conditions which led to the abrupt falling off in customs duties of the previous year still continue. The European conflict has involved the nations of continental Europe from which come a large part of the dutiable imports and for this reason the customs receipts have been substantially curtailed. Before the breaking out of the European war the amount of the collections indicated clearly that under normal conditions the present tariff will produce all the

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revenue which it was estimated to produce at the time it was drawn, and since the war the receipts under the tariff bill have been all that could be expected under the present conditions.

In some directions the activities of the Customs Service, on account of the falling off of dutiable imports, have decreased as compared with the conditions prior to the war. While the amount of revenue collected has decreased, both imports and exports have increased in volume. Both this increased commerce and the maintenance of the neutrality of the United States have brought additional responsibilities to the service.

The increase in drawback has also added to the work of the department. In the past year there was paid in drawback upon the exportation of goods manufactured in whole or in part from imported dutiable materials the sum of $15,370,945. This is an increase of over 100 per cent of the amount paid during the fiscal year 1915, when the amount of drawback was $7,403,686. This increase in the amount of drawback paid follows from the increase in the industrial activities of the country, the increase in value of the imports being in great part due to the increased importations of raw materials for manufacture in the export trade.

The expense of collecting the revenue from customs for the fiscal year 1916 amounted to $9,813,085, notwithstanding the increase in the activities of the Customs Service and the added work incident to the enforcement of the seamen's act. This indicates an actual saving as compared with the previous year of $117,176, a decrease from the expenses of conducting the service in 1914 of $628,093, and in 1913 of $1,118,349. This decrease in cost was made possible by improved methods and by the installation of modern devices of performing office work. The expenditures for the purchase of such improved devices in this year prevented a further reduction in operating cost.

The total number of employees during the fiscal year has decreased from 7,079 to 6,881. The average compensation of the employees during the same period has increased $26 per capita, from $1,311 to $1,337. The department has adopted the policy of not dismissing efficient employees solely because their services were not needed. To avoid dismissals the force has been shifted, in order that decreases in the force might be effected through vacancies which would occur by death, resignation, or removal. Discrepancies have existed in compensation paid for the same service in different parts of the country, and it is the policy of the department to try as much as possible to standardize the compensation paid in the various districts, with due regard to the local conditions. Increases in compensation during the year amounted to $175,000, distributed to deserving employees throughout the Customs Service, which amounted to a net increase per capita of $26. Despite this increase there was a net decrease in operation during the year of $117,176.

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The Customs Service maintains an efficiency board for advice and assistance to the department in working out its problems. During the past year this board has visited 11 customs districts and has made recommendations to customs officers in those districts to standardize and increase the efficiency of the service. When these recommendations are made operative in full, it is expected that substantial economies will be effected.

The system for the exchange of information relating to the value and classification of imported merchandise, through what is known as the "classification and valuation reports" (C. V. R.), has been greatly improved. This is accomplished by having the various appraising officers forward daily to the appraiser at the port of New York data taken by them from invoices, price lists, and catalogues received, accompanied by samples when practicable. These reports are compared with each other and with the records and data at the port of New York, and information is sent out to the various appraisers of changes in market prices and advances in values. Any transactions indicating fraudulent undervaluations are made the subject of special investigation. This has resulted in securing an almost perfect uniformity in the valuations and classifications of the same merchandise at the various ports and furnishes added means for the detection of fraudulent undervaluations.

The customs regulations have been revised for the first time since 1908, and the new volume has been issued as "Customs Regulations of 1915." The entire work was performed by employees in the Customs Service, detailed for that purpose, without any extra cost to the Government. This has saved the special appropriation which, in the past, has been made by the Congress to revise these regulations.

The Division of Special Agents has been consolidated with the Division of Customs. This consolidation accomplished a direct saving in operating expenses of $11,020 per annum. Experience of nine months under the new system has demonstrated that the work formerly done in both divisions can be performed more efficiently and with better cooperation under one head.

The annual meeting of customs officers was held in October, 1915. These conferences permit discussion of problems of the Customs Service, resulting in better understanding among the employees and in bringing forth many valuable suggestions for the improvement of the service. At the last conference the following resolutions were adopted:

(1) That section 3 of the act of February 13, 1911, be so amended as to permit bonds to be taken in a penal sum less than $50,000 for the issuance of special licenses and permits for the immediate unlading of vessels at night.

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Such bonds are required by statute to be given in the sum of $50,000, whether the vessel be large or small and whether the cargo be of great or little value. Experience has shown that the possibility of incurring a liability on these bonds is remote, and it would be in the interest of commerce to permit the bonds to be taken in such an amount as would protect the Government, which would in almost every instance be less than $50,000.

(2) That section 2857, Revised Statutes, be repealed. This section in effect requires an importer to give a bond for the production of a triplicate invoice in the event that, through a change of the destination of the merchandise, a triplicate invoice is not received at the time of entry, although the importer may be possessed of the duplicate invoice. In such cases, the triplicate invoice has been forwarded by the consul before whom it was certified to the port of destination named in the invoice. Under the regulations, when such merchandise is entered at another port, the triplicate invoice is secured from the collector of customs at the original port of destination. The statute requires the giving of unnecessary bonds by importers, and both they and the customs officers should be relieved from this red tape.

(3) That the act of June 10, 1880 (21 Stat., 173), relating to the forwarding of merchandise under entry for immediate transportation from the port of arrival to the port of destination, be so amended as to permit such entries to be taken at any time within one year after arrival, instead of limiting the time to 10 days after the unlading of the merchandise. The conference was unanimously of the opinion that there is no good reason for placing such a 10-day limit upon the time within which merchandise may be so forwarded. The act of June 10, 1880, is inapplicable to present conditions in many respects, and its thorough revision is recommended in the interest of commerce and for the purpose of eliminating unnecessarily cumbersome procedure in the customhouse.

(4) That sections 3038, 3039, and 3048, Revised Statutes, be repealed. These statutes prescribe the manner of the payment of drawback upon the exportation of merchandise. Under the procedure provided, a "debenture certificate" is first issued; that certificate may be surrendered at the end of 30 days and a check given by the customs officer in payment thereof. What purpose was ever served by the procedure is problematical. At the present time no purpose appears to be served other than requiring double work in the issuance of the debenture certificate and the subsequent issuance of a check for the same transaction.

My annual report for the year 1915 contains a recommendation for an amendment of sections 2899 and 2901, Revised Statutes, and the repeal of sections 1790, 2693, 2775, 2777, and 2782. I recommend

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the adoption of the resolutions passed at the collectors' conference in 1915 and renew the recommendations made in my annual report for 1915.

INTERNAL REVENUE.

The receipts of the Bureau of Internal Revenue for the fiscal year ended June 30, 1916, based on collectors' reports, amounted to $512,723,287.77, the greatest in the history of the department, showing an increase of $97,042,263.91 over the previous year. This unprecedented amount was collected at the low cost of $7,199,163.32, or 1.4 per cent.

Every source but one from which a large amount of internal-revenue taxes is collected shows decided gains over the previous year. Taxes from distilled spirits increased $13,385,692.80; from manufactured tobacco, snuff, cigars, and cigarettes, $7,853,337.28; from the corporation income tax, $17,828,189.17; and from the individual income tax, $26,897,432.54. The receipts from the tax on fermented liquors (exclusive of the additional tax of 50 cents a barrel imposed under the act of October 22, 1914), however, register a decrease of $1,155,327.35, this being the only source from which a large amount of revenue is received that shows a loss. The increase in the income tax, individual and corporation, from $80,201,758.86 in 1915, to $124,937,252.61, a difference of $44,735,493.75, or over 55 per cent, indicates a high degree of prosperity generally distributed, and is the most striking feature of the year's collections. The net increase in ordinary internal-revenue receipts of $52,306,770.16 results to the extent of $32,209,175.84 from taxes collected under the so-called emergency revenue act, which became a law on October 22, 1914, was extended by joint resolution on December 17, 1915, and was consequently in effect all of 1916 and only part of 1915.

During the last three years a vigorous campaign has been carried on against frauds on the revenue. Frauds running back many years have been uncovered, many of the guilty parties have been prosecuted and convicted and millions of dollars have been turned into the Treasury. The amount of revenue which the United States Government has lost, as revealed by the investigations conducted by the department during the past three years, makes transactions of the "Whisky Ring" look like petty larceny. Frauds amounting to more than $50,000,000 have been uncovered and $22,509,576 has been recovered by the Government on account of such frauds and on account of back taxes that have been evaded. This is $2,700,000 greater than the entire cost of the Internal Revenue Service for these three years.

Narcotic law.

On June 30, 1916, the Harrison narcotic law had been in effect 16 months, and the operation of the law has given the department

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a better view of the conditions to be met. There are several serious defects in the law and there is urgent need of remedial legislation.

During the year approximately 23,754 violations of this act were reported, and there were pending 460 cases against registered and 216 cases against unregistered persons in which no action has been taken up to this time. The Supreme Court on June 12, 1916, handed down a decision in the case of United States *v.* Jin Fuey Moy, arising under section 8 of the act, in which it was held that the charge of unlawful possession of any of the proscribed drugs denounced in said section did not apply to persons not required to be registered under section 1, but only to those classes specified in that section.

This decision makes the enforcement of this law more difficult and handicaps the efforts of the department to suppress the traffic in drugs by irresponsible persons. It also emphasizes the urgent need of a thorough revision of this act if the object of Congress for the control of the drug evil in this country is to be accomplished.

Before the Supreme Court decision was rendered a large number of persons had been tried, convicted and sentenced to pay fines or serve terms of imprisonment, or both, for violation of section 8, because of unlawful possession of the proscribed drugs, and it became necessary to take immediate steps for their relief. Where sentences had been imposed the persons were released from prison, but there was no authority of law to refund fines paid. It will be necessary, therefore, for the Congress to make an appropriation for this purpose.

The situation resulting from this decision makes additional legislation imperative if the welfare of the country and of those afflicted by the drug evil is to be protected. Therefore it is again recommended that this act be amended or revised to provide—

First. A tax on the drugs with provision for original stamped packages, limiting the dealing in and dispensing of and from such packages to those registered under the law, and making the absence of the stamp from any package evidence of nonpayment of the tax and violation of the law, except packages put up upon prescriptions issued for medical purposes by registered practitioners.

Second. That the registration be limited under the act to persons lawfully engaged in selling, dispensing, administering, or prescribing the drugs.

Third. That the writing of prescriptions, keeping of records, and altering or forging of same be more fully covered by the statute, with adequate provision for punishment of offenses denounced.

Fourth. That all the general provisions of the internal-revenue statutes relating to seizures, forfeitures, etc., be made applicable to the drugs taxed and the persons upon whom special taxes are imposed.

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I also recommend that the Congress appropriate the necessary amount of money for repayment of fines imposed by the courts upon persons convicted of unlawful possession under section 8, and urge that provision be made for the treatment by the Government, through some designated agency, of persons addicted to the use of drugs, where such treatment is necessary. To cut off suddenly the supply of drugs without curing the addict of his cravings or making any provision for the amelioration of his sufferings is not only inhumane but encourages evasions of the law.

PUBLIC HEALTH SERVICE.

The Public Health Service has conducted its work with customary efficiency and benefit to the country. It is one of the most useful arms of the public service and is performing work of greater importance each year. In the field of rural sanitation alone there is opportunity for inestimable service to the rural communities of the United States. I desire to renew and respectfully to urge that the recommendations contained in my report for the year 1915 be adopted. I respectfully call attention of the Congress to the report of the Surgeon General and express my approval of the recommendations contained therein.

The poliomyelitis situation.

About June 17, 1916, a serious epidemic of infantile paralysis (acute anterior poliomyelitis) broke out in the cities of New York and Brooklyn. It was evident in the first days of July that this epidemic would gravely menace other parts of the country. By October 3 the number of cases had exceeded 9,000 and the deaths 2,300. Since that date the epidemic has practically subsided.

While in New York City on July 6 I called on Mayor Mitchel and offered the assistance and cooperation of the United States Public Health Service. This offer was promptly accepted and steps were taken immediately by the Public Health Service to make investigations of an epidemiologic and laboratory nature. In addition, the department took steps to aid local authorities in other places in necessary measures of protection through a notification system established in New York. The work was thus developed along two lines:

(1) Organizing a system of notification to the health authorities of other States of the departure from New York of persons under 16 years of age. Thirty-six public health officers were assigned to this duty. A plan of cooperation was arranged with the transportation lines whereby passage was denied to children attempting to leave the city without the certificates issued by the Public Health Service.

(2) Making epidemiological and laboratory studies of the possible transmission of the disease through carriers.

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Work on both of these problems was begun at once. The need for additional funds for purposes of control was recognized, and on the recommendation of the Secretary appropriations of $135,000 were made by the Congress to enable the Public Health Service to employ the required officers and take such preventive measures as the situation demanded. A conference was held in Washington on August 17, attended by the health authorities of a large number of States and cities, at which the measures already taken by the Public Health Service were indorsed and a series of resolutions adopted outlining the respective fields of action of Federal, State, and local authorities in preventing interstate and intrastate spread of the disease.

On the subsidence of the epidemic the system of notification in force in New York City was discontinued in October, its purpose having been accomplished. During the time of its operation about 80,000 health certificates to traveling children were issued.

The New York epidemic furnished an opportunity to the United States Public Health Service to continue studies of infantile paralysis which had been begun previously. In order to utilize the large amount of available material, 15 officers and the necessary attendants were assigned to these studies.

On account of the gravity of the problems presented by this epidemic and the possibility of its recurrence next year, I have directed the Public Health Service to prosecute vigorously the scientific investigations already begun. Sufficient appropriations should be made for this vitally important work, which may have to be continued for a considerable period of time before definite results are obtained. Funds should also be made available to meet future epidemic emergencies. These needs have been taken into account in reasonable degree in the estimates submitted to the Congress. It is my opinion that the Federal Government should spare no effort or expense to discover the cause of this mysterious and deadly disease which has claimed so many victims and given rise to so many obscure scientific problems.

Government employees afflicted with tuberculosis.

In the first session of the Sixty-third Congress a bill was introduced at my suggestion providing for the admission to the United States Public Health Sanatorium for Tuberculosis at Fort Stanton, N. Mex., of a limited number of employees of the executive departments and independent bureaus of the Government in Washington who may contract tuberculosis while so employed. I take this opportunity of again urging that this legislation be enacted and that a reasonable appropriation be made for the transportation of such patients to Fort Stanton and for their care, maintenance, and treatment while in the sanatorium.

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PUBLIC BUILDINGS.

May I respectfully say that as a result of my study of the public-building question for the past three years and my experience gained in the administration of the laws relating to the designing, construction, and operation of public buildings through the Supervising Architect's Office, I am convinced that the methods pursued by the Congress for the past 15 years of providing Federal buildings through so-called omnibus public-building bills have resulted in the construction of many public buildings in small towns and localities where they are not needed, and at a cost which is clearly unjustified by any actual requirements of the communities in which they are erected. The conclusion is irresistible that authorizations for public buildings in these small communities are too frequently dictated by local reasons and without regard to the best interests of the Government.

In the past two decades the Congress has authorized and appropriated approximately $180,000,000 for public buildings, and the major part of this great sum has been expended on costly structures in small localities where neither the Government business nor the convenience of the people justified their construction, and while the initial cost of these buildings represents a large waste of public funds, this is not the worst of it. The most serious aspect is this: The annual operation and maintenance of these buildings impose on the Treasury a permanent and constantly increasing burden.

There are now more than 1,000 Federal buildings to be operated and maintained, and this number is being increased at the rate of a new building every fourth day in the year. Meanwhile, the cities and larger towns have outgrown their Government buildings and nearly every populous center in the United States is to-day acutely in need of additional space to meet the demands of greatly increased and constantly increasing Government business. To such an extent has the Government business outgrown the old structures in the cities that the rentals for outside space now amount approximately to $3,000,000 annually. This capitalized at 3 per cent represents $100,000,000, and is doubtless the amount required to provide the facilities sorely needed for the prompt, efficient, and economical conduct of the public business in the great centers and large cities of the country.

Common sense and business judgment would seem to demand that structures for the transaction of Government business should be authorized only in localities where they are imperatively needed, and that buildings should not be erected where no public necessity can be shown. This result could be accomplished by divorcing the public-buildings question from all local or political considerations

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and authorizing no public buildings until a thorough and intelligent investigation of each proposed building or project has been made by this department and a full report thereon has been submitted to the Congress. If such reports were followed by the introduction and passage of separate measures to cover each proposed building project, the abuses and evils of the omnibus-bill method would be eradicated.

Progress of the work.

So long as the practice continues of authorizing at one time the construction of public buildings in such numbers as to be vastly in excess of the capacity of the department to dispose of them promptly there will be dissatisfaction. If, however, the accumulation of projects resulting from this method of legislation is disposed of as rapidly as may be possible with the facilities provided therefor by the Congress, there can be no just ground for criticizing the department or the Supervising Architect's Office because of the delay which must necessarily ensue in handling the work.

Judged by the output of the Supervising Architect's Office during the period covered by this report, and comparing that output with the output in years when the technical force of that office was much larger than at present, it is apparent that exceptional progress has been made, both in getting buildings under contract and in securing the completion of buildings already under contract. These results have been accomplished by the Supervising Architect's Office in the face of adverse conditions beyond its control, and in spite of the failure of the Congress to provide a small additional force to balance its technical divisions to equalize its output.

During the period covered by this report satisfactory progress has been made in disposing of the accumulation of public-building work which resulted from the enactment of the 1913 omnibus public-building act, although at that time there remained a very large number of buildings to be constructed under previous authorizations.

The output of the Supervising Architect's Office during the past fiscal year was:

Buildings placed under contract	88
Extensions and remodeling projects	8
	96
Completed during the same period:	
Buildings	94
Extensions and remodeling projects	7
	101

In other words, the output shows an average rate of a building placed under contract in less than every four calendar days and a building completed ready for occupancy in the same average period.

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Except as to the listed extension and remodeling projects the foregoing does not include the numerous contracts, large and small, entered into for the proper maintenance and repair of occupied public buildings, now numbering over 1,000.

Economies.

During the fiscal year ended June 30, 1916, unexpended balances on completed building work, aggregating $391,404.66, were covered into the Treasury.

The aggregate sum available for the principal contracts for public-building work let during the year was $14,232,605.83. The contracts let did not include all expenditures necessary for completion, but conservative reservations indicate that the total cost will approximate $12,100,000, thus resulting in a saving equal to the cost of forty-two $50,000 post-office buildings.

Standardization.

Noteworthy progress in standardization has been made. A type of building has been designed for a post office which, with minor modifications to meet local conditions, can be utilized during the fiscal year 1917 in over 30 communities.

New Patent Office building.

No action has been taken under the authority contained in section 17 of the omnibus public-building act approved March 4, 1913, for the preparation of plans and estimates for "a building to accommodate the Patent Office of the United States," for the reason that the limit set for the cost of such work, viz, $5,000, is insufficient for the purpose, and the additional amount estimated for the purpose was not appropriated. The department is ready, whenever the necessary appropriation is provided, to proceed promptly with this work, as it can be carried forward independently of and without interference with the regular building program of the Supervising Architect's Office.

National archives building.

In conformity with the provisions of section 21 of the omnibus public-building act approved March 4, 1913, designs and estimates have been prepared for a national archives building, and have been submitted for the approval of the commission created by said act.

Interior Department office building.

The contract for the Department of Interior office building was let during the period covered by this report, and work is progressing

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at a rate indicating the probability of its completion within the time stipulated therefor, and well within the limit of cost fixed by the Congress.

Government buildings in Washington.

It becomes increasingly evident with the passing of each year that the additional buildings, departmental and otherwise, required in the city of Washington for the proper conduct of the Government's business ought to be constructed. The real estate for the most important of the departmental buildings was bought years ago. Not only is the Government carrying these expensive lands at a large annual cost, but it is paying high rentals for insufficient and unsatisfactory quarters in private buildings throughout the city. There is a loss of efficiency and a lack of economy in conducting the Government's business in these circumstances. Moreover, the erection of the necessary Government buildings in Washington will greatly beautify the city, while more satisfactorily serving the actual necessities of the Government. I earnestly recommend that the Congress give consideration to these important projects and grant the necessary authority to begin work upon them.

COAST GUARD.

The organization of the Coast Guard has been completed. New regulations to govern the service have been prepared and promulgated and arrangements have been made whereby the operation of the Coast Guard may be promptly transferred to the Navy Department in time of war or whenever the President shall so direct.

Ice patrol to promote safety at sea.

Two Coast Guard cutters have continued the patrol of the ice regions in the North Atlantic, in accordance with the terms of the International Convention for Safety at Sea, which was approved by the Senate December 16, 1914. The total cost of the patrol for 1915 was $69,236.39, and up to September 1, 1916, the proportionate amounts due the United States in accordance with article 7 of the convention have been received from Belgium, Canada, Denmark, Great Britain, Italy, Norway, Russia, and Sweden. Through the usual diplomatic channels the several powers will be advised of the sums due from them to defray the cost of the patrol for 1916.

New ships.

In addition to the new cutters recommended in last year's report, it will be necessary to provide three new cutters during the next fiscal year. The 35-year old *Thetis*, formerly stationed at Honolulu,

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having become unfit for further use, has been condemned and sold to the highest bidder. This important station is thus left without the services of a Coast Guard cutter, and it is recommended that authority be given to construct a new vessel at a cost of $400,000. The *Morrill*, stationed at Detroit, Mich., is now over 27 years old and entirely incapable of performing efficient service on the Great Lakes. The vast amount of commerce on these great inland seas makes it imperative that a suitable cutter be maintained there. I therefore ask for authority to construct a new cutter to replace the *Morrill* at an estimated cost of $350,000. The vicinity of Cape Hatteras, as well known, is one of the most dangerous stretches of coast along our entire seaboard. More marine disasters occur and more derelicts originate on this section of the coast than on any other. The *Seminole*, stationed at Wilmington, N. C., covers the coast from Hatteras south to Charleston; the *Onondaga*, stationed at Norfolk, Va., covers the coast from Hatteras north to the capes of the Chesapeake, but frequently these two vessels alone are unable to cope with the amount of rescue work the Coast Guard is called upon to perform in those waters. It is therefore urged that a new cutter be authorized for this vicinity at a cost of $350,000 and stationed at Beaufort, N. C., to operate off Cape Hatteras, and to carry on derelict work along the Atlantic coast generally.

Coastal communications.

There can be no question as to the absolute necessity for adequate means of communication between and with Coast Guard stations along our coasts, both for saving life and property and to aid in the national defense. Present facilities are entirely inadequate, and I heartily concur in the recommendation of the Captain Commandant that the communication service of the Coast Guard be put in an efficient condition along the lines suggested.

Pay of seamen.

It is becoming increasingly difficult to enlist sufficient men to man properly the various cutters of the Coast Guard because of the low rates of pay in the Coast Guard as compared with the existing rate of pay in the merchant marine for like services. Between the years 1863 and 1908 the law authorized the Secretary of the Treasury to fix the pay of the enlisted force on the cutters at rates not to exceed those paid for like services in the merchant marine, and the practical operation of this law was most satisfactory. In 1908 a law was passed increasing the rates of pay of the enlisted force of the Coast Guard 20 per cent, and the law officers have held that the rates thus fixed can not be changed by administrative act. Meanwhile the pay of the

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men in the merchant service has advanced, and in the past two years has increased to a considerable extent. Since the Coast Guard must obtain its seamen in competition with the merchant marine, it is earnestly recommended that the Congress either increase the present rates of pay in the Coast Guard or reenact section 2754 of the Revised Statutes, which latter action would enable the Secretary to increase the rates of pay of enlisted men to meet the wages paid in the merchant marine for like services. Action in this important matter is imperative.

Aviation.

The provision in the naval appropriation act approved August 29, 1916, authorizing aviation facilities for the Coast Guard, was very gratifying to this department. One of the chief functions of this service is the saving of life and property from the perils of the sea. It is obvious, therefore, that nothing should be left undone that will contribute to the complete fulfillment of this purpose, and the Coast Guard should be able to avail itself of every reasonable and practicable means which has this end in view. Aviation has now advanced to such a stage that air craft can be advantageously used to supplement the present equipment of the Coast Guard in saving life from shipwreck and searching for derelicts, and as the service must operate as a part of the Navy during national emergencies the aviation equipment and personnel of the Coast Guard can not fail to be of value as a military asset in any plan of national defense that may be adopted by the Navy. Unfortunately in the closing hours of the last session the Congress failed to provide the necessary funds in the general deficiency bill to carry out the requirements of law for aviation in the Coast Guard. I therefore strongly recommend that ample funds be provided in the first deficiency appropriation bill that may be passed at this session of the Congress.

WAR RELIEF WORK.

The accounts of many of the officials who were charged with this work have not yet been received and settled. Over 11,500 obligations, aggregating $666,633.40, have been received by the Treasurer of the United States, and on October 25, 1916, $343,070.99 had been collected. Many of the obligations remaining unpaid will never be collected, for in some instances it has been impossible to locate the signers, others are unable to pay, some are dead, and a few have refused to reimburse the Government for funds advanced to them in their distress. Nevertheless, the work of collecting these obligations is proceeding in the office of the Treasurer with a fair degree of success. From January 1 to October 11, 1916, $40,033.53 was col-

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lected at a cost of $5,210.88, notwithstanding the fact that the Treasurer's office is not equipped, and therefore has poor facilities, as a collection agency.

RETIREMENT OF CIVIL SERVICE EMPLOYEES.

The need for an adequate civil service retirement law is becoming more imperative each year. The Treasury Department bears upon its rolls a large number of aged employees whose efficiency is gradually waning. The introduction of new and improved methods of performing the constantly increasing volume of work in the department has served to emphasize the need for making some provision for the older employee who is unable to keep step with progress. It does not seem humane or fair to discontinue arbitrarily the services of superannuated employees who have given their entire energies and spent the best years of their lives in the service of the Government. To do so would in most cases leave the employees without any source of income and result in serious hardship. To reduce aged employees does not entirely meet the needs of the case, as it leaves the employees still on the rolls of the department.

I believe that the enactment of an equitable retirement law for superannuated and disabled employees of the civil service in the Treasury Department would result in actual economies and increased efficiency in the handling of the business of the department, and I therefore recommend this subject to the Congress for its serious consideration.

ROCK CREEK AND POTOMAC PARKWAY COMMISSION.

The Congress has authorized a total expenditure of $1,300,000 to acquire the land necessary to connect Zoological Park and Potomac Park in order to carry out the project of opening up Rock Creek Valley for the beautifying of Washington, and has made an appropriation of $50,000 to get the work under way. The project is under the charge of a commission composed of the Secretary of the Treasury, the Secretary of War, and the Secretary of Agriculture, who are pushing it as rapidly as possible. It has made a report to the Congress describing the land which, in its opinion, should be acquired, which report was approved by the act of July 1, 1916. The commission is engaged in private negotiations with the owners—many of whom have indicated their willingness to dispose of land at reasonable prices—with a view to securing the completion of the entire project without unnecessary delay. Every effort is being made to insure the artistic development of the entire parkway scheme, and in this connection the Commission of Fine Arts

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has been freely consulted. The lands in the entire parkway will comprise an area of about 162 acres, 42 per cent of which is already owned by the United States. Its length is about 2¼ miles, and its final development will give Washington a beautiful park, comparable to any like undertaking in any city of the world.

SECTION OF SURETY BONDS.

Under the act of Congress of March 23, 1910 (36 Stat., p. 241), amending an act of August 13, 1894 (28 Stat., pp. 279–280), the jurisdiction of the Attorney General over surety companies was transferred to the Secretary of the Treasury. On July 16, 1914 (38 Stat., p. 468), the Section of Surety Bonds, which had previously been a part of the Division of Appointments, was created as a separate and distinct part of the work of the Secretary's office. The section as now organized is rendering valuable service to the various departments, and has been directly responsible for saving large sums of money to the Government in connection with its bonding business. The act of March 23, 1910, should be amended so as to extend the supervision of the Secretary of the Treasury over surety companies doing business with the Government, and thereby secure a larger measure of protection for the Government with respect to its bonds than is now possible under existing law.

GENERAL SUPPLY COMMITTEE.

A comparison of market prices as of January 1, 1916, with the contract prices for articles and supplies for the Government which were negotiated through the General Supply Committee for the fiscal year 1916 discloses a saving of more than $700,000 on supplies purchased during that fiscal year. This is an excellent result considering the unsettled market conditions controlling many articles and classes of supplies during the year.

The continued existence of the General Supply Committee, through which the Secretary of the Treasury negotiates contracts for all common supplies of the Government, is amply and fully justified. This centralized and systematized method of negotiating such contracts, instead of permitting the various purchasing officers of the different departments and governmental establishments to enter into contracts for supplies without relation to one another, has resulted in great economy of labor and money. During the past year a material improvement has been made in many of the specifications. The schedule now covers more than 20,000 items in actual use. The manner in which many difficult questions arising in connection with the recommendations for awards have been handled by the committee

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and the assistance it has rendered in securing compliance with contracts on account of unsettled market conditions deserve commendation.

It is clear that further economy and improved service would result if the duties of the General Supply Committee were enlarged so as to include the direct purchasing of supplies. Under the present law there is no authority for the exercise of such powers. The activity of the Secretary of the Treasury through the medium of the committee stops with the execution and enforcement of contracts. I hope that steps will be taken to remedy this situation by consolidating under one head not only the contractual functions incident to the purchasing of supplies but also the actual purchasing thereof. This would necessarily involve a warehousing system. This is the plan followed by the leading successful industrial concerns of the country in the purchase of their supplies, and until the Government adopts this system it will not secure the greatest return for the money expended. The present organization of the General Supply Committee is a great improvement, but until legislation is enacted broadening the scope of the committee as herein suggested the Government will be unable to secure its supplies at the most advantageous prices.

SINKING FUND.

Attention is called to the views expressed in my report for the year 1915 (p. 46), as follows:

> The sinking-fund acts should be revised. Either an actual fund should be established, with definite and specific appropriation made therefor, together with specific provisions for the administration of the fund, or else the existing acts should be repealed and the Secretary directed to purchase and retire interest-bearing obligations of the United States whenever the same may be acquired advantageously and the condition of the Treasury will warrant such action.

Similar recommendations were made by my predecessor in the annual report for the year 1911.

It is probable that the present laws on the subject were passed and later continued in force under the belief that they would aid in strengthening the public credit through the period of refunding the Civil War debt and the return to a coin basis. Such reasons are now without any force whatever and no pledge of a portion of any specific revenue, as under the existing sinking-fund law, is either necessary or advisable as a support to public credit, nor is any such assurance or guarantee needed that the interest-bearing obligations of the United States will be discharged when due.

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The existing sinking-fund law has been on the statute books for more than 50 years, having been enacted in February, 1862, but it was impracticable to set up a sinking-fund account during the Civil War period because the Government was then borrowing money and issuing bonds therefor. No portion of the debt could therefore be purchased and retired for the account. It was not until the year 1869 that the account was set up under the law of 1862. Since 1869 purchases and redemptions of the debt for retirement thereof have been made annually when practicable.

On February 21, 1916, in accordance with a request therefor, the views of this department were transmitted to the Committee on Finance of the United States Senate respecting Senate bill 55, Sixty-fourth Congress, first session, "A bill to authorize the Secretary of the Treasury to use at his discretion surplus moneys in the Treasury in the purchase or redemption of the outstanding interest-bearing obligations of the United States," intended to accomplish the desired revision of the laws relating to the sinking fund. This bill was favorably reported in Senate report No. 289, passed the Senate April 24, 1916, and is now pending before the Committee on Ways and Means of the House of Representatives.

I earnestly recommend that said Senate bill 55 be enacted into law during the comming session of the Congress.

PANAMA CANAL.

The general fund of the Treasury was charged during the fiscal year 1916 with $17,503,728.07 for Panama Canal account without the sale of bonds. Of this sum $9,239,563.69 for construction work is reimbursable from proceeds of bonds when sold. The difference, $8,264,164.38, for fortifications and miscellaneous accounts, is by law not to be so reimbursed. The total amount expended for the canal from the general fund to June 30, 1916, reimbursable from proceeds of bonds not yet sold, was $228,711,200.17.

CONTINGENT FUND.

I respectfully request that the Congress appropriate for the fiscal year 1918 the sum of $15,000 as a contingent fund for the Secretary of the Treasury, a like amount having been appropriated for the fiscal year 1917.

CONDITION OF THE TREASURY.

On June 30, 1916, the balance in the Treasury of the United States (exclusive of credits to disbursing officers) was $178,491,415.58, as

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against a balance (excluding credits to disbursing officers) on June 30, 1915, of $104,170,105.78, showing an increase for the year of $74,321,309.80. This was the largest balance in the Treasury at the close of any fiscal year since June 30, 1908.

The ordinary revenues of the year were $779,664,552.49, an increase of $87,180,107.37 as compared with 1915. Internal-revenue receipts for the year increased $97,032,382.78 and customs receipts increased $3,399,173.42. Miscellaneous receipts, including those from land sales, showed a decrease of $13,251,448.83.

The ordinary disbursements for the year were $724,492,998.90, being $5,610,592.90 less than for 1915. Disbursements on account of the Panama Canal for the year, amounting to $17,503,728.07, were paid out of the general fund. The total amount of disbursements on this account for the three fiscal years ending June 30, 1916, is $81,517,712.05, all of which has been paid from the general fund and none of which has been reimbursed by the issue of bonds. The total amount expended for the canal from the general fund to June 30, 1916, reimbursable from the proceeds of bonds not yet sold, is $228,711,200.17.

The estimate of receipts and disbursements for the fiscal year 1917 (p. 48 of this report) shows that although the current receipts will be insufficient fully to meet the current expenditures, there will, nevertheless, be a surplus in the general fund at the end of the fiscal year, amounting to $114,937,995.43, including unencumbered disbursing officers' credits—that is, this sum represents the estimated balance in the Treasury June 30, 1917, free of all current obligations, the entire amount being available for the future expenditures of the Government. This is upon the basis of maintaining the troops upon the Mexican border until the 31st of December, 1916, and paying the entire cost thereof out of current revenues. Should the troops be kept on the border for the remainder of the fiscal year 1917 it would be necessary to reimburse the Treasury for expenditures on this account by the sale of Panama bonds or by additional revenue legislation.

The estimate of receipts and disbursements for the fiscal year 1918 (p. 49 of this report) shows that the existing laws will not provide sufficient revenues to take care of the unusual expenses of the Government due, for the most part, to the large expenditures required by the Army and Navy for preparedness, estimated for that year at $367,194,000. I respectfully urge upon the attention of the Congress the necessity for passing such measures as will provide additional revenues to meet the situation.

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FINANCES.

The following statements showing receipts, disbursements, estimates, and the condition of the Treasury are submitted:

RECEIPTS AND DISBURSEMENTS.

Fiscal year 1916.

The receipts and disbursements of the Government during the fiscal year ended June 30, 1916, were as follows:

(See details on pp. 38 to 44.)

GENERAL FUND.

Receipts into the general fund, including various trust-fund receipts, but excluding postal revenues:		
Customs		$213,185,845.63
Internal revenue—		
Ordinary	$303,486,474.04	
Emergency revenue	84,278,302.13	
Corporation income tax	56,993,657.98	
Individual income tax	67,943,594.63	
		512,702,028.78
Sales of public lands		1,887,661.80
Miscellaneous		51,889,016.28
Total ordinary receipts		779,664,552.49
Disbursements from the general fund for current expenses and capital outlays, including various trust-fund disbursements, but excluding postal service paid from postal revenues and Panama Canal disbursements:		
For civil establishment—		
Legislative establishment	$13,848,007.16	
Executive proper	395,940.11	
State Department	6,444,594.11	
Treasury Department proper	62,688,853.23	
Public buildings, construction and sites	11,048,164.57	
War Department proper	2,217,975.56	
Department of Justice	10,662,463.28	
Post Office Department proper	1,770,710.04	
Postal deficiencies	5,500,000.00	
Navy Department proper	853,768.88	
Interior Department proper	24,786,197.60	
Department of Agriculture	28,031,540.33	
Department of Commerce	11,403,722.17	
Department of Labor	3,531,144.47	
Independent offices	7,221,803.24	
District of Columbia	13,633,853.16	
		204,038,737.91

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Disbursements from the general fund for current expenses and capital outlays, etc.—Continued.		
For War Department—		
For Military Establishment, $122,392,362.98, as follows:		
Support of the Army, $109,039,761.80; Military Academy, $1,034,819.19; militia, $8,536,669.59; fortifications, $2,829,907.25; arsenals, $378,520.49; military posts and miscellaneous, $572,684.66	$122,392,362.98	
For rivers and harbors	32,450,301.55	
For War miscellaneous, civil, including national homes, $5,395,342.81; soldiers' deposit fund, $1,411,826.38; cemeteries, parks, claims, etc., $2,985,742.95	9,792,912.14	
		$164,635,576.67
For Naval Establishment, including construction of new vessels, machinery, armament, equipment, improvement at navy yards, and miscellaneous		155,029,425.78
For Indian Service		17,570,283.81
For pensions		159,302,351.20
For interest on the public debt		22,900,313.03
		723,476,688.40
Add difference arising in adjustment of miscellaneous accounts		1,016,310.50
Total ordinary disbursements		724,492,998.90
Excess of ordinary receipts		55,171,553.59
Panama Canal:		
Receipts from tolls, etc	2,869,995.28	
Disbursements for canal provided from general fund	17,503,728.07	
Excess of canal disbursements, provided from general fund		14,633,732.79
Excess of receipts, including the Panama Canal		40,537,820.80
Public debt—issues and redemptions:		
National-bank-note fund, act July 14, 1890—		
Receipts—deposits to retire notes	56,648,902.50	
Postal savings—		
Deposits for postal savings bonds	1,803,500.00	
Total public-debt receipts	58,452,402.50	
National-bank-note fund, act July 14, 1890—		
Redemptions—notes retired	24,633,010.50	
Miscellaneous redemptions, public debt	35,903.00	
Total public-debt disbursements	24,668,913.50	

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Public debt—issues and redemptions—Continued.	
Excess of public-debt receipts over public-debt disbursements	$33,783,489.00
NOTE.—During the year exchanges of bonds amounting to $10,290,600 were made under the provisions of section 18 of the Federal Reserve Act of Dec. 23, 1913, without affecting the cash in the Treasury, as follows: $5,600,600 of 2 per cent consols of 1930, $175,000 of 2 per cent Panama Canal bonds, series of 1906, and $125,000 of 2 per cent Panama Canal bonds, series of 1908, were exchanged for 3 per cent conversion bonds, and $4,390,000 of 2 per cent consols of 1930 were exchanged for 3 per cent one-year Treasury notes.	
Total excess of receipts over disbursements	74,321,309.80
General-fund balances:	
Balance in general fund June 30, 1915, (exclusive of disbursing officers' credits)	104,170,105.78
Excess of general-fund receipts for year	74,321,309.80
Balance in general fund June 30, 1916, (exclusive of disbursing officers' credits)	178,491,415.58

SUMMARY OF GENERAL FUND TRANSACTIONS.

Fiscal year ended June 30, 1916.

	Receipts.	Disbursements.
Ordinary receipts, including various trust-fund receipts, but excluding postal revenues	$779,664,552.49	
Disbursements for current expenses and capital outlays, including various trust-fund disbursements, but excluding postal service paid from postal revenues and Panama Canal disbursements		$724,492,998.90
Panama Canal receipts, tolls, etc	2,869,995.28	
Panama Canal disbursements		17,503,728.07
National-bank note fund, act July 14, 1890:		
Receipts—deposits to retire notes	56,648,902.50	
Redemptions—notes retired		24,633,010.50
Deposits for postal savings bonds	1,803,500.00	
Miscellaneous redemptions of the public debt		35,903.00
Total disbursements from the general fund		766,665,640.47
Excess of receipts over disbursements		74,321,309.80
Grand totals	840,986,950.27	840,986,950.27

POSTAL SERVICE.

Exclusive of Post Office Department proper, which is included in "civil establishment."

Postal revenue receipts	$312,057,688.83
Postal service paid from postal revenues	306,228,452.76
Excess of receipts	5,829,236.07

UNITED STATES NOTES (GREENBACKS).

Issues to replace worn and mutilated notes	$170,000,000.00
Worn and mutilated notes retired	170,000,000.00

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The redemptions during the year of the notes unfit for circulation necessitated the issue of a like amount thereof to maintain the outstanding aggregate of the notes as required by law.

Gold Reserve Fund.

Balance in reserve fund June 30, 1915	$152,977,036.63
Balance in reserve fund June 30, 1916	152,979,025.63

The redemptions of notes for gold from the reserve fund during the year were: United States notes, $70,684,405, and Treasury notes of 1890, $2,000, a total of $70,686,405.

As the redeemed notes were exchanged each day for gold in the general fund, the reserve was maintained at the fixed sum required by law, including $2,979,025.63 tax on additional circulation received under act of May 30, 1908.

Trust Funds.

(Held for the redemption of the notes and certificates for which they are respectively pledged.)

Gold coin	$814,722,260	Gold certificates outstanding	$1,729,565,669
Gold bullion	750,678,029	Less amount in the Treasury	164,165,380
Total gold	1,565,400,289	Net	1,565,400,289
		Silver certificates outstanding	499,451,000
		Less amount in the Treasury	9,540,063
Silver dollars	489,910,937	Net	489,910,937
		Treasury notes (1890) outstanding	2,103,000
		Less amount in the Treasury	4,835
Silver dollars 1890	2,098,165	Net	2,098,165
	2,057,409,391		2,057,409,391

SINKING FUND.

The securities redeemed on account of the sinking fund, included in general-fund disbursements, were as follows:

Fractional currency	$1,743.00
One-year notes of 1863	20.00
Consols of 1865	50.00
Funded loan of 1891	700.00
Refunding certificates	530.00
Funded loan of 1907	32,700.00
Compound-interest notes	160.00
Total	35,903.00

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CONDITION OF THE TREASURY JUNE 30, 1916.

The public debt of the United States at the close of the fiscal year 1916 is set forth in detail, as follows:

Interest-bearing debt:		
Loan of 1925, 4 per cent	$118,489,900.00	
Loan of 1908–1918, 3 per cent	63,945,460.00	
Consols of 1930, 2 per cent	636,259,550.00	
Panama Canal loan, 2 per cent	84,331,980.00	
Panama Canal loan, 3 per cent	50,000,000.00	
Postal savings bonds, 2½ per cent	8,245,100.00	
Conversion bonds, 3 per cent	5,900,600.00	
One-year Treasury notes, 3 per cent	4,390,000.00	
		$971,562,590.00
Debt on which interest has ceased:		
Funded loan of 1891	26,950.00	
Loan of 1904	13,050.00	
Funded loan of 1907	519,650.00	
Refunding certificates	12,060.00	
Old debt	901,390.26	
		1,473,100.26
Debt bearing no interest:		
United States notes (greenbacks)	346,681,016.00	
National-bank notes, redemption account	51,506,237.50	
Old demand notes	53,152.50	
Fractional currency	6,848,496.90	
		405,088,902.90
Total interest and noninterest bearing debt, exclusive of certificates and notes offset by coin and silver bullion		1,378,124,593.16

CASH IN THE TREASURY JUNE 30, 1916.

[From revised statements.]

Reserve fund:		
Gold coin and bullion		$152,979,025.63
Trust funds:		
Gold coin and bullion		1,565,400,289.00
Silver dollars		489,910,937.00
Silver dollars of 1890		2,098,165.00
		2,057,409,391.00
General fund:		
In Treasury offices—		
Gold coin	$85,114,618.20	
Standard silver dollars	9,846,285.00	
United States notes	4,961,469.00	
Federal reserve notes	3,067,665.00	
Federal reserve bank notes	38,005.00	
National-bank notes	2,712,909.00	
Certified checks on banks	11,715.85	
Subsidiary silver coin	17,440,436.84	
Minor coin	905,003.86	
Silver bullion (at cost)	6,050,811.53	
Unclassified (unassorted currency, etc.)	385,260.69	
		130,534,179.97

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General fund—Continued.			
In Federal reserve banks			$113,480,576.00
In national-bank depositaries—			
To credit of Treasurer of the United States		$32,255,429.17	
To credit of other Government officers		7,264,772.63	
In transit		23,313,572.63	
			62,833,774.43
In treasury of Philippine Islands—			
To credit of Treasurer of the United States		2,050,042.81	
To credit of other Government officers		1,918,079.92	
			3,968,122.73
			310,816,653.13
Deduct current liabilities—			
National-bank note 5 per cent fund	$25,854,760.40		
Less notes in process of redemption	22,060,957.10		
		3,793,803.30	
Treasurer's checks outstanding		1,348,847.63	
Post Office Department balance		14,566,630.45	
Board of trustees, Postal Savings System balance		3,922,464.86	
Balance to credit of postmasters, clerks of courts, etc		18,106,187.41	
Undistributed assets of insolvent national banks		1,622,433.44	
Deposits for:			
Redemption of Federal reserve notes (5 per cent fund)		11,116,205.36	
Redemption of Federal reserve bank notes (5 per cent fund)		450,000.00	
Retirement of additional circulating notes, act of May 30, 1908		6,168,235.00	
Miscellaneous redemption accounts		13,795,900.00	
			74,890,707.45
Balance in the Treasury, June 30, 1916, as per Financial Statement of the United States Government			235,925,945.68
Settlement warrants, coupons, and checks outstanding—			
Treasury warrants		$2,309,205.14	
Matured coupons		579,919.44	
Interest checks		329,697.41	
Disbursing officers' checks		13,843,128.26	
			17,061,950.25
Balance in the Treasury, June 30, 1916, free of all current obligations			[a] 218,863,995.43

[a] The balance in the Treasury of $218,863,995.43 includes $41,286,057.56 disbursing officers' credits, after deducting outstanding checks, and is free of all current obligations, the entire amount being available for the future expenditures of the Government.

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Comparison of receipts, fiscal years 1915 and 1916.

	1916	1915	Increase, 1916.	Decrease, 1916
Customs	$213,185,845.63	$209,786,672.21	$3,399,173.42	
Internal revenue:				
Ordinary	303,486,474.04	283,398,760.85	20,087,713.19	
Emergency revenue	84,278,302.13	52,069,126.29	32,209,175.84	
Corporation income tax	56,903,657.98	39,155,596.77	17,838,061.21	
Individual income tax	67,943,594.63	41,046,162.09	26,897,432.54	
Sales of public lands	1,887,661.80	2,167,136.47		$279,474.67
Consular fees	1,466,572.72	1,456,019.85	10,552.87	
Chinese indemnity	533,238.47	535,260.60		2,022.13
Profits on coinage, bullion deposits, etc	4,354,613.12	4,427,902.98		73,289.86
Payment of interest by Pacific railways	9,148.07	9,247.01		98.94
Tax on circulation of national banks	3,838,034.25	3,908,606.90		70,572.65
Interest on public deposits	928,106.35	1,297,069.87		368,963.52
Premium on war-risk insurance	862,556.56	1,774,464.49		911,907.93
Night services, customs service	312,691.17	186,123.56	126,567.61	
Customs fees, fines, penalties, etc	957,125.25	793,876.59	163,248.66	
Proceeds of militia property lost or destroyed	127,167.48	64,949.17	62,218.31	
Sale of battleships Idaho and Mississippi		12,535,275.96		12,535,275.96
Navy hospital and clothing funds, fines and forfeitures, etc	761,457.92	915,308.99		153,851.07
Sales of ordnance material, etc	159,808.26	124,253.42	35,554.84	
Land fees	1,723,657.45	1,614,116.34	109,541.11	
Fees on letters patent	2,329,510.36	2,265,485.73	64,024.63	
Compromise and repurchase of forfeited lands		76,620.23		76,620.23
Depredations on public lands	148,554.80	75,358.85	73,195.95	
Deposits for surveying public lands	73,255.34	191,734.28		118,478.94
Contributions for protecting Imperial Valley, Cal		100,000.00		100,000.00
Proceeds of town sites, Reclamation Service	21,189.28	18,436.28	2,753.00	
Forest reserve fund	2,883,783.73	2,534,958.63	348,825.10	
Immigrant fund	803,419.25	1,325,778.79		522,359.54
Naturalization fees	391,503.00	452,778.50		61,275.50
Proceeds of seal and fox skins	56,396.83	108.55	56,288.28	
Annual yacht tax	15,540.00	27,296.60		11,756.60
Alaska fund	266,081.04	227,081.49	38,999.55	
Judicial fees, fines, penalties, etc	938,046.01	855,221.57	82,824.44	
Surplus postal revenues		3,500,000.00		3,500,000.00
Sales of Government property	1,473,621.74	1,225,325.94	248,295.80	
Rent of public buildings, grounds, etc	190,134.99	185,439.80	4,695.19	
Sales of lands and buildings	145,962.30	34,234.60	111,727.70	
District of Columbia, general receipts	9,132,976.52	8,748,527.61	384,448.91	
Funds contributed for river and harbor improvements	591,150.00	1,163,002.43		571,852.43
Reimbursements on account of expenditures made for Indian tribes	551.80	450,376.10		449,824.30
Assessments on Federal reserve banks, for salaries, etc	802,315.68	361,087.28	441,228.40	
Assessments on national banks for expenses of examiners	150,000.00		150,000.00	
Miscellaneous	2,817,892.86	1,860,631.89	957,260.97	
TRUST FUNDS.				
Department of State:				
Miscellaneous trust funds	842,596.46	110,025.67	732,570.79	
War Department:				
Army deposit fund	1,633,261.49	1,802,606.60		169,345.11
Soldiers' Home permanent fund	541,596.03	539,237.35	2,358.68	
Navy Department:				
Navy deposit fund	154,283.00	208,676.00		54,393.00
Marine Corps deposit fund	173,825.06	176,984.00		3,158.94
Interior Department:				
Proceeds of Indian lands	2,696,719.73	2,386,136.09	310,583.64	
Indian moneys, proceeds of labor	5,486,446.57	3,058,670.62	2,427,775.95	
Miscellaneous trust funds	348,645.82	591,980.41		243,334.59
Personal funds of patients, Government Hospital for Insane	29,244.79	19,391.75	9,853.04	
Pension money, Government Hospital for Insane	94,736.00	99,197.54		4,461.54

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Comparison of receipts, fiscal years 1915 and 1916—Continued.

	1916	1915	Increase, 1916.	Decrease, 1916.
TRUST FUNDS—continued.				
District of Columbia:				
Miscellaneous trust-fund deposits.	$426,711.68	$509,411.67	.....	$82,699.99
Washington redemption fund....	148,204.14	132,388.41	$15,815.73	.....
Police and firemen's relief funds...	134,522.56	121,753.78	12,768.78	.....
Other trust funds.....	35,672.93	23,638.38	12,034.55	.....
Total.....	779,788,065.07	692,725,513.83	107,427,568.68	20,365,017.44
Deduct—				
Moneys covered by warrant in year subsequent to the deposit thereof.....	396,393.76	637,462.47	.....	241,068.71
	779,391,671.31	692,088,051.36	107,427,568.68	20,123,948.73
Add—				
Moneys received in fiscal year but not covered by warrant.	272,881.18	396,393.76	.....	123,512.58
Ordinary receipts.....	779,664,552.49	692,484,445.12	107,427,568.68	20,247,461.31
Panama Canal:				
Receipts from tolls, etc.....	2,869,995.28	4,130,215.15	.....	1,260,219.87
Public debt:				
Postal savings bonds.....	1,803,500.00	933,540.00	869,960.00	.....
National-bank note fund.....	56,648,902.50	21,553,415.00	35,095,487.50	.....
Exchanged for consols of 1930 and Panama Canal bonds without affecting the cash: Conversion bonds, $5,900,600. 1-year Treasury notes, $4,390,000.				
Public debt receipts.....	58,452,402.50	22,486,955.00	35,965,447.50	.....
Total receipts, exclusive of postal.....	840,986,950.27	719,101,615.27	143,393,016.18	21,507,681.18
Postal revenues.....	312,057,688.83	287,248,165.27	24,809,523.56	.....
Total receipts, including postal.	1,153,044,639.10	1,006,349,780.54	168,202,539.74	21,507,681.18

Comparison of disbursements, fiscal years 1915 and 1916.

	1916	1915	Increase, 1916.	Decrease, 1916.
CIVIL ESTABLISHMENT.				
Legislative:				
Senate.....	$1,807,450.84	$1,796,518.83	$10,932.01	.....
House of Representatives.....	4,916,880.61	5,081,324.92	.....	$164,444.31
Legislative, miscellaneous.....	1,106,908.53	449,835.82	657,072.71	.....
Public Printer.....	5,356,903.00	5,601,144.28	.....	247,241.28
Library of Congress.....	627,306.02	615,162.15	12,143.87	.....
Botanic Garden.....	32,558.16	30,413.19	2,144.97	.....
Total legislative.....	13,848,007.16	13,577,399.19	682,293.56	411,685.59
Executive proper:				
Salaries and expenses.....	205,128.62	193,150.01	11,978.61	.....
Relief, etc., American citizens in Europe.....	[1]168,906.45	2,498,618.08	.....	2,667,524.53
Bureau of Efficiency.....	12,537.28	.....	12,537.28	.....
Civil Service Commission.....	347,180.66	374,112.41	.....	26,931.75
Total executive proper.....	395,940.11	3,065,880.50	24,515.89	2,694,456.28
Department of State:				
Salaries and expenses.....	379,719.15	349,224.90	30,494.25	.....
Foreign intercourse—				
Diplomatic salaries.....	934,709.66	596,839.93	337,869.73	.....
Consular salaries.....	1,501,379.15	1,439,935.42	61,443.73	.....
Contingent expenses of foreign missions.....	320,480.55	373,486.97	.....	53,006.42
Contingencies of consulates...	419,645.85	475,734.95	.....	56,089.10
Emergencies arising in the Diplomatic and Consular Service.....	86,685.29	107,947.61	.....	21,262.32

[1] Excess of repayments.

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Comparison of disbursements, fiscal years 1915 and 1916—Continued.

	1916	1915	Increase, 1916.	Decrease, 1916.
CIVIL ESTABLISHMENT—continued.				
Department of State—Continued.				
Relief of American citizens in Mexico	$38,136.93	$46,307.57		$8,170.64
Representation of interests of foreign Governments	646,739.75	271,475.27	$375,264.48	
Payment to Panama	190,258.61	250,000.00		59,741.39
Claim of owners of cargo, S. S. Dacia	727,762.98		727,762.98	
Miscellaneous items	631,020.59	535,808.31	95,212.28	
Trust funds	568,055.60	461,845.86	106,209.74	
Total Department of State	6,444,594.11	4,908,606.79	1,734,257.19	198,269.87
Treasury Department:				
Salaries, Secretary's office and divisions thereof	640,812.57	633,106.20	7,706.37	
Contingent fund for Secretary	13,539.63	3,702.78	9,836.85	
Conference of American financiers	18,081.15	31,896.45		13,815.30
International High Commission	16,050.02		16,050.02	
Contingent expenses of department	216,797.43	247,895.12		31,097.69
Customs Service—				
Collecting customs revenues	9,625,219.84	10,040,066.75		414,846.91
Detection and prevention of frauds	166,077.61	158,739.89	7,337.72	
Refunding excess of deposits	2,816,121.40	4,297,594.32		1,481,472.92
Debentures or drawbacks	15,992,963.88	7,631,568.98	8,361,394.90	
Compensation in lieu of moieties	27,347.75	17,517.71	9,830.04	
Miscellaneous refunds	21,410.56	11,340.32	10,070.24	
Internal-Revenue Service—				
Expenses of collecting	6,900,805.74	6,594,028.27	306,777.47	
Refunds and reliefs	3,116,595.54	2,314,800.93	801,794.61	
Suppressing counterfeiting and other crimes	145,839.43	140,625.03	5,214.40	
Accounting offices	1,637,307.25	1,644,635.29		7,328.04
Miscellaneous offices	1,129,252.02	1,187,078.02		57,826.00
Public Health Service	2,368,213.27	2,308,426.31	59,786.96	
Epidemic diseases	470,804.20	459,393.97	11,410.23	
War risk insurance—				
Expenses	18,652.64	16,691.93	1,960.71	
Losses	62,226.57	709,103.00		646,876.43
Engraving and printing	3,660,659.13	3,634,705.52	25,953.61	
Paper, etc., for United States securities	401,583.20	470,678.15		69,094.95
Preparation and issue of Federal reserve notes	[1]127,934.68	155,050.83		282,985.51
Salaries and expenses under act to amend the national banking laws		481,679.70		481,679.70
Coast Guard	5,129,666.50	4,986,455.60	143,210.90	
Revenue vessels	198,652.37	262,577.32		63,924.95
Independent Treasury	561,401.91	745,503.54		184,098.63
Mints and assay offices	1,011,295.38	978,314.42	32,980.96	
Public buildings—				
Sites, construction, and equipment	11,048,164.57	14,632,085.62		3,583,921.05
Current maintenance	5,573,402.52	5,321,557.76	251,844.76	
Panama-Pacific Exposition	202,113.46	357,475.42		155,361.96
Miscellaneous items	111,562.44	266,131.89		154,569.45
Special funds—				
Philippine special funds	273,769.92	183,437.82	90,332.10	
Night services, Customs Service	288,559.58	183,426.73	105,132.85	
Total Treasury Department	73,737,017.80	71,107,291.59	10,258,625.70	7,628,899.49
War Department:				
Salaries and expenses	1,809,174.45	1,811,368.45		2,194.00
Public buildings and grounds	408,801.11	404,166.74	4,634.37	
Total War Department	2,217,975.56	2,215,535.19	4,634.37	2,194.00
Navy Department:				
Salaries and expenses	853,768.88	885,870.15		32,101.27

[1] Excess of repayments.

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Comparison of disbursements, fiscal years 1915 and 1916—Continued.

	1916	1915	Increase, 1916.	Decrease, 1916.
CIVIL ESTABLISHMENT—continued.				
Interior Department:				
Salaries and expenses, office of Secretary	$767,132.34	$761,052.43	$6,079.91	
General Land Office	654,503.41	661,988.51		$7,485.10
Public lands service	2,487,893.14	2,797,670.39		309,777.25
Indian Office	315,168.15	314,847.69	320.46	
Pension Office	1,582,780.86	1,678,691.97		95,911.11
Patent Office	1,471,563.79	1,485,294.31		13,730.52
Bureau of Education	300,930.30	341,334.30		40,404.00
Colleges for agriculture and the mechanic arts	2,500,000.00	2,500,000.00		
Geological Survey	1,378,641.48	1,361,842.33	16,799.15	
Bureau of Mines	681,681.22	710,307.45		28,626.23
Office of Superintendent of Capitol Building and Grounds	609,938.76	803,139.42		193,200.66
National parks	271,001.65	282,423.47		11,421.82
Territorial governments	28,941.85	50,143.29		21,201.44
Beneficiaries	590,332.31	658,373.71		68,041.40
Protecting lands and property in the Imperial Valley	6,357.98	100,511.06		94,153.08
Construction, etc., of railroads in Alaska	4,148,790.90	572,786.03	3,576,004.87	
Enlarging the Capitol grounds	313,205.71	1,110,112.94		796,907.23
Miscellaneous items	116,615.82	128,784.18		12,168.36
Special funds—				
Reclamation fund	5,891,614.71	12,090,225.78		6,198,611.07
Five, three, and two per cent funds, sales of lands	100,342.78	110,679.31		10,336.53
Revenues of national parks and Hot Springs, Ark	141,932.26	117,519.52	24,412.74	
Deposits for surveying public lands	154,741.18	124,349.35	30,391.83	
Public schools, Alaska fund	78,080.26	65,192.62	12,887.64	
Miscellaneous special funds	6,733.52	100,946.93		94,213.41
Miscellaneous trust funds	187,273.22	141,426.00	45,847.22	
Total Interior Department	24,786,197.60	29,069,642.99	3,712,743.82	7,996,189.21
Post Office Department:				
Salaries and expenses	1,770,347.82	1,805,265.03		34,917.21
Deficiency in postal revenues	5,500,000.00	6,636,592.60		1,136,592.60
Miscellaneous items	362.22	89,608.61		89,246.39
Total Post Office Department	7,270,710.04	8,531,466.24		1,260,756.20
Department of Agriculture:				
Salaries and miscellaneous	7,359,168.58	6,799,312.01	559,856.57	
Animal Industry, expenses	1,747,776.66	1,751,280.48		3,503.82
Meat inspection, Animal Industry	3,373,533.08	3,184,677.69	188,855.39	
Foot-and-mouth disease	921,654.46	3,416,155.83		2,494,501.37
Investigating hog cholera and dourine	133,426.77	343,479.52		210,052.75
Plant Industry, expenses	1,609,806.26	2,730,892.34		1,121,086.08
Purchase of seeds	260,189.20	236,561.68	23,627.52	
Biological Survey, expenses	411,160.73	237,796.75	173,363.98	
Public Roads, expenses	662,784.60	532,567.64	130,216.96	
Forest Service	3,455,446.79	3,831,447.27		376,000.48
Acquisition of lands for protection of watersheds, navigable streams	1,480,076.33	1,138,094.51	341,981.82	
Enforcement food and drugs act	635,794.36	553,482.78	82,311.58	
States Relation Service, expenses	2,606,892.11	1,635,597.42	971,294.69	
Cooperative extension work	1,074,934.73	480,000.00	594,934.73	
Weather Bureau, expenses	1,324,627.79	1,362,079.65		37,451.86
Special funds—				
Payments to States and Territories from National Forests fund	610,788.49	630,436.92		19,648.43
Roads and trails for States	286,052.10	209,244.03	76,808.07	
Miscellaneous special funds	77,427.29	58,005.55	19,421.74	
Total Department of Agriculture	28,031,540.33	29,131,112.07	3,162,673.05	4,262,244.79

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Comparison of disbursements, fiscal years 1915 and 1916—Continued.

	1916	1915	Increase, 1916.	Decrease, 1916.
CIVIL ESTABLISHMENT—continued.				
Department of Commerce:				
Salaries and expenses	$916,494.64	$1,039,274.30		$122,779.66
Bureau of Standards	790,169.80	634,303.68	$155,866.12	
Census Office	1,179,292.58	1,553,327.98		374,035.40
Coast and Geodetic Survey	1,178,860.18	1,095,301.95	83,558.23	
Lighthouse Establishment	5,722,146.22	5,607,966.78	114,179.44	
Bureau of Fisheries	982,829.90	993,589.87		10,759.97
Fish hatcheries	89,456.23	32,500.00	56,956.23	
Steamboat-Inspection Service	539,380.71	533,961.13	5,419.58	
Miscellaneous items	5,091.91	8,873.07		3,781.16
Total Department of Commerce	11,403,722.17	11,499,098.76	415,979.60	511,356.19
Department of Labor:				
Salaries and expenses	161,418.82	154,055.75	7,363.07	
Bureau of Labor Statistics	283,069.85	256,911.96	26,157.89	
Bureau of Naturalization	359,848.14	337,389.28	22,458.86	
Bureau of Immigration	80,021.70	109,724.62		29,702.92
Regulating immigration	2,437,436.61	2,531,329.24		93,892.63
Immigration stations	60,000.00	252,271.56		192,271.56
Children's Bureau	149,349.35	141,929.45	7,419.90	
Total Department of Labor	3,531,144.47	3,783,611.86	63,399.72	315,867.11
Department of Justice:				
Salaries and expenses	1,509,581.50	1,538,126.23		28,544.73
Salaries of justices, assistant attorneys, etc	1,669,291.98	1,511,300.97	157,991.01	
Court of Claims	65,473.84	67,375.33		1,901.49
Salaries, fees, etc., of marshals	1,602,149.79	1,520,269.87	81,879.92	
Fees of witnesses	1,052,479.94	1,194,251.35		141,771.41
Salaries and fees, district attorneys	622,907.82	612,777.06	10,130.76	
Fees of jurors	1,104,144.55	1,153,885.55		49,741.00
Fees of clerks	206,301.83	230,885.96		24,584.13
Fees of commissioners	150,781.93	151,764.12		982.19
Support of prisoners	796,942.78	670,455.49	126,487.29	
Pay of bailiffs	267,309.19	268,436.98		1,127.79
Miscellaneous expenses, United States courts	437,189.38	478,719.37		41,529.99
Miscellaneous items	1,177,908.75	1,036,623.69	141,285.06	
Total Department of Justice	10,662,463.28	10,434,871.97	517,774.04	290,182.73
Independent bureaus and offices:				
Interstate Commerce Commission	5,016,135.74	3,790,435.15	1,225,700.59	
Smithsonian Institution	148,235.41	204,008.60		55,773.19
National Museum	387,147.75	403,018.99		15,871.24
Zoological Park	98,186.94	104,215.36		6,028.42
Territorial governments	22,426.21	199,050.08		176,623.87
Salaries, etc., Federal Reserve Board	821,763.30	295,535.96	526,227.34	
Federal Trade Commission	369,950.37	89,000.00	280,950.37	
State, War, and Navy Department Building	203,988.13	182,895.34	21,092.79	
Commissions	153,969.39	470,614.30		316,644.91
Total independent bureaus and offices	7,221,803.24	5,738,773.78	2,053,971.09	570,941.63
District of Columbia:				
Salaries and expenses	12,274,319.37	11,891,436.91	382,882.46	
Special funds—				
Water department	591,187.13	602,122.17		10,935.04
Miscellaneous special funds	4,468.15	5,890.81		1,422.66
Trust funds—				
Miscellaneous trust-fund deposits	462,477.13	458,382.27	4,094.86	
Washington redemption fund	143,914.09	134,965.25	8,948.84	
Police and firemen's relief funds	132,789.44	118,095.21	14,694.23	
Other trust funds	24,697.85	9,770.35	14,927.50	
Total District of Columbia	13,633,853.16	13,220,662.97	425,547.89	12,357.70
Total Civil Establishment	204,038,737.91	207,169,824.05	23,056,415.92	26,187,502.06

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Comparison of disbursements, fiscal years 1915 and 1916—Continued.

	1916	1915	Increase, 1916.	Decrease, 1916.
WAR DEPARTMENT.				
Military Establishment:				
Quartermaster Corps	$49,885,842.05	$44,789,473.92	$5,096,368.13	
Pay, etc., of the Army	51,740,587.56	48,057,877.13	3,682,710.43	
Medical Department	822,010.09	660,577.54	161,432.55	
Ordnance Department	5,644,799.36	7,116,190.74		$1,471,391.38
Engineer Department	2,829,907.25	2,820,913.23	8,994.02	
Signal Service	1,252,498.76	638,333.60	614,165.16	
Military Academy	1,034,819.19	996,035.84	38,783.35	
Military posts	279,538.05	1,427,921.64		1,148,383.59
Militia	8,536,669.59	9,030,093.25		493,423.66
Miscellaneous items	293,146.61	223,945.69	69,200.92	
Special funds; ordnance material, powder, etc	72,544.47	52,478.66	20,065.81	
Total Military Establishment	122,392,362.98	115,813,841.24	9,691,720.37	3,113,198.63
War miscellaneous, civil:				
National cemeteries	297,857.45	328,912.21		31,054.76
National parks	399,674.88	584,690.22		185,015.34
National homes for disabled soldiers	4,139,039.84	3,150,249.29	988,790.55	
State homes for disabled soldiers	1,256,302.97	1,042,696.36	213,606.61	
Sufferers from floods and fire		47,977.00		47,977.00
Soldiers' Home interest account	102,186.32	100,495.58	1,690.74	
Monuments	45,475.00	55,567.53		10,092.53
War claims and relief acts	1,179,285.19	1,220,189.30		40,904.11
Expenses interned Mexican soldiers and refugees	82,113.21	350,064.31		267,951.10
Miscellaneous items	223,275.70	529,380.38		306,104.68
Special funds—				
Wagon roads, etc., Alaska fund	164,487.57	171,983.78		7,496.21
Miscellaneous special funds	26,500.00	6,277.21	20,222.79	
Trust funds—				
Pay of the Army, deposit fund	1,411,826.38	2,188,655.79		776,829.41
Soldiers' Home permanent fund	464,887.63	548,197.29		83,309.66
Total War miscellaneous, civil	9,792,912.14	10,325,336.25	1,224,310.69	1,756,734.80
Rivers and harbors:				
Improving harbors	28,640,705.38	8,674,536.93	19,966,168.45	
Improving rivers	3,196,426.52	36,415,323.09		33,218,896.57
Special funds, for rivers and harbors	613,169.65	1,744,054.22		1,130,884.57
Total rivers and harbors	32,450,301.55	46,833,914.24	19,966,168.45	34,349,781.14
Total War Department	164,635,576.67	172,973,091.73	30,882,199.51	39,219,714.57
NAVY DEPARTMENT.				
Naval Establishment:				
Increase of the Navy	37,079,260.95	39,363,324.69		2,284,063.74
Bureau of Yards and Docks	5,358,755.41	5,800,345.62		441,590.21
Bureau of Equipment	75,290.37	395,373.10		320,082.73
Bureau of Navigation	3,211,057.30	2,867,142.33	343,914.97	
Bureau of Construction and Repair	9,647,235.08	9,835,233.16		187,998.08
Bureau of Ordnance	11,667,366.39	10,161,497.09	1,505,869.30	
Bureau of Steam Engineering	8,299,371.11	8,698,007.61		398,636.50
Bureau of Supplies and Accounts	14,888,904.03	16,435,657.61		1,546,753.58
Bureau of Medicine and Surgery	770,047.13	706,633.07	63,414.06	
Marine Corps	6,046,686.17	7,786,419.12		1,739,732.95
Naval Academy	464,702.68	614,211.47		149,508.79
Pay of the Navy	43,162,518.91	42,542,600.41	619,918.50	
Judgments, Court of Claims	97,540.98	31,546.66	65,994.32	
General account of advances	12,901,224.83	[1]5,322,316.57	18,223,541.40	
Miscellaneous items	564,816.63	327,155.91	237,660.72	
Special funds—				
Naval hospital fund	[1]218,823.08	215,840.24		434,663.32
Ordnance material (proceeds of sales)	69,014.19	27,500.00	41,514.19	
Fines and forfeitures	570,931.42	650,838.04		79,906.62
Clothing fund	47,046.89	374,505.24		327,458.35
Trust funds—				
Pay, Marine Corps, deposit fund	147,136.76	128,366.56	18,770.20	
Pay of the Navy, deposit fund	179,317.09	195,119.00		15,801.91
Prize money	24.54	653.62		629.08
Total Naval Establishment	155,029,425.78	141,835,653.98	21,120,597.66	7,920,825.86

[1] Excess of repayments.

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Comparison of disbursements, fiscal years 1915 and 1916—Continued.

	1916	1915	Increase, 1916.	Decrease, 1916.
INDIAN SERVICE.				
Current and contingent expenses	$1,281,469.58	$1,120,523.00	$160,946.58	
Fulfilling treaty stipulations	572,577.51	649,248.71		$76,671.20
Miscellaneous supports	653,570.75	657,910.23		4,339.48
Interest on Indian trust-fund accounts	1,655,681.27	2,047,706.74		392,045.47
Support of Indian schools	4,035,589.30	4,011,135.19	24,454.11	
Miscellaneous expenses	3,748,821.42	4,028,016.94		279,195.52
Trust funds	5,622,593.98	9,615,809.89		3,993,215.91
Total Indian Service	17,570,283.81	22,130,350.70	185,400.69	4,745,467.58
Pensions	159,302,351.20	164,387,941.61		5,085,590.41
Interest on the public debt	22,900,313.03	22,902,897.04		2,584.01
	723,476,688.40	731,399,759.11	75,244,613.78	83,167,684.49
Deduct repayments received in fiscal year but not covered by warrant	279,856.81	1,296,167.31		1,016,310.50
	723,196,831.59	730,103,591.80	75,244,613.78	82,151,373.99
Add repayments covered by warrant in year subsequent to the deposit thereof	1,296,167.31		1,296,167.31	
Ordinary disbursements[1]	724,492,998.90	730,103,591.80	76,540,781.09	82,151,373.99
Panama Canal disbursements	17,503,728.07	29,187,042.22		11,683,314.15
Public debt:				
National bank-note fund	24,633,010.50	17,205,958.00	7,427,052.50	
Funded loan of 1907	32,700.00	42,550.00		9,850.00
Miscellaneous redemptions	3,203.00	4,983.00		1,780.00
Exchanged for conversion bonds and one-year Treasury notes—Consols of 1930, $9,990,600, Panama Canal bonds, series of 1906 and 1908, $300,000.				
Public debt disbursements	24,668,913.50	17,253,491.00	7,427,052.50	11,630.00
Total disbursements, exclusive of postal	766,665,640.47	776,544,125.02	83,967,833.59	93,846,318.14
Postal Service, payable from postal revenues[2]	306,228,452.76	287,248,165.27	18,980,287.49	
Total disbursements, including postal	1,072,894,093.23	1,063,792,290.29	102,948,121.08	93,846,318.14

[1] Exclusive of Panama Canal, public debt, and Postal Service disbursements.
[2] Exclusive of grants from the Treasury for deficiencies in postal revenues included in expenses of civil establishment, p. 41.

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Detailed estimates for the fiscal years 1917 and 1918 follow:

Fiscal year 1917.

The receipts and disbursements of the Government for the current fiscal year are estimated upon the basis of existing laws, as follows:

RECEIPTS.

Ordinary receipts:		
From customs		$230,000,000
From internal revenue—		
Ordinary	$319,000,000	
Emergency revenue and receipts from munition manufacturers' and estate taxes	124,000,000	
Income tax—		
Corporations	133,000,000	
Individuals	111,750,000	
		687,750,000
From sales of public lands		2,000,000
From miscellaneous sources		56,000,000
Total estimated ordinary receipts		975,750,000
Panama Canal:		
Estimated receipts from tolls, etc	$6,500,000	
Public debt:		
Estimated deposits for issue of postal savings bonds	2,000,000	
Total estimated Panama Canal and public debt receipts		8,500,000
Grand total estimated receipts		984,250,000

DISBURSEMENTS.

For civil establishment:	
Legislative establishment	14,000,000
Executive proper, including Tariff Commission	850,000
State Department	9,600,000
Treasury Department proper	64,500,000
Farm loan banks—subscription to capital stock	9,000,000
Public buildings, construction and sites	12,500,000
War Department proper	2,192,000
Department of Justice	10,850,000
Post Office Department proper	1,900,000
Navy Department proper	966,000
Interior Department proper	33,000,000
Department of Agriculture	34,000,000
Department of Commerce	11,900,000
Department of Labor	4,000,000
Independent offices	7,500,000
District of Columbia	14,935,000
Total civil establishment	231,693,000
For War Department:	
Military Establishment, including $126,396,000 for preparedness	$307,900,000
Rivers and harbors	45,000,000
Miscellaneous War, Civil	7,250,000
	360,150,000

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For Navy Department (including $87,700,000 for preparedness):		
Naval Establishment, exclusive of building program	$159,965,000	
Navy building program, new	66,586,000	
Navy building program, prior years	28,369,000	
		$254,920,000
For Indian Service		30,000,000
For pensions		158,063,000
For interest on the public debt		23,300,000
Total estimated ordinary disbursements		1,058,126,000
Panama Canal:		
Disbursements for the canal from the general fund of the Treasury		20,000,000
Public debt:		
Estimated retirements of national-bank notes in excess of deposits therefor		10,000,000
Miscellaneous redemptions of the debt		50,000
Grand total estimated disbursements		1,088,176,000
Estimated excess of ordinary disbursements over ordinary receipts, fiscal year 1917		82,376,000
Estimated excess of total disbursements over total receipts, Panama Canal disbursements from the general fund included, fiscal year 1917		103,926,000

POSTAL SERVICE.

The Post Office Department estimates that under existing laws the postal revenues for the fiscal year 1917 will probably be $324,500,000, with expenditures for the Postal Service for the same period of approximately $320,500,000.

Fiscal year 1918.

It is estimated that upon the basis of existing laws the receipts and disbursements for the fiscal year 1918 will be:

RECEIPTS.

Ordinary receipts:		
From customs		$230,000,000
From internal revenue—		
Ordinary	$319,000,000	
Emergency revenue and receipts from munition manufacturers' and estate taxes	145,800,000	
Income tax:		
Corporations	133,000,000	
Individuals	111,750,000	
		709,550,000
From sales of public lands		2,000,000
From miscellaneous sources		54,000,000
Total estimated ordinary receipts		995,550,000

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Panama Canal:		
Estimated receipts from tolls, etc	$10,000,000	
Public debt:		
Estimated deposits for issue of postal savings bonds	2,000,000	
Total estimated Panama Canal and public-debt receipts		$12,000,000
Grand total estimated receipts		1,007,550,000

DISBURSEMENTS.

For civil establishment:		
Legislative establishment		14,000,000
Executive proper, including Tariff Commission		900,000
State Department		6,600,000
Treasury Department proper		67,741,000
Public buildings, construction and sites		13,000,000
War Department proper		2,330,000
Department of Justice		11,150,000
Post Office Department proper		1,750,000
Navy Department proper		1,125,000
Interior Department proper		35,800,000
Department of Agriculture		41,000,000
Department of Commerce		16,613,000
Department of Labor		4,400,000
Independent offices		8,000,000
District of Columbia		16,467,000
Total civil establishment		240,876,000
For War Department:		
Military Establishment, including $170,194,000 for preparedness	$412,869,000	
Rivers and harbors	38,000,000	
Miscellaneous War, Civil	13,194,000	
		464,063,000
For Navy Department (including $197,000,000 for preparedness):		
Naval Establishment, exclusive of building program	150,162,000	
Navy building program, new	96,962,000	
Navy building program, prior years	118,946,000	
		366,070,000
For Indian Service		28,000,000
For pensions		155,558,000
For interest on the public debt		23,454,000
Total estimated ordinary disbursements		1,278,021,000
Panama Canal:		
Disbursements for the canal from the general fund of the Treasury		20,000,000
Public debt:		
Estimated retirements of national-bank notes in excess of deposits therefor		10,000,000
Miscellaneous redemptions of the debt		50,000
Grand total estimated disbursements		1,308,071,000

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Estimated excess of ordinary disbursements over ordinary receipts, fiscal year 1918	$282,471,000
Estimated excess of total disbursements over total receipts, Panama Canal disbursements from the general fund included, fiscal year 1918	300,521,000

SUMMARY.

Estimated results to the close of the fiscal year 1918, beginning with the balance in the general fund of the Treasury June 30, 1916.

Fiscal year 1917.

Balance in the Treasury June 30, 1916, as per financial statement of the United States Government		$235,925,945.68
Settlement warrants, coupons, and checks outstanding:		
Treasury warrants	$2,309,205.14	
Matured coupons	579,919.44	
Interest checks	329,697.41	
Disbursing officers' checks	13,843,128.26	
		17,061,950.25
Balance in the Treasury June 30, 1916, free of all current obligations		[1] 218,863,995.43
Add—		
Estimated ordinary receipts	$975,750,000.00	
Estimated Panama Canal receipts, tolls, etc	6,500,000.00	
Estimated deposits for postal savings bonds	2,000,000.00	
		984,250,000.00
		1,203,113,995.43
Deduct—		
Estimated ordinary disbursements	1,058,126,000.00	
Estimated Panama Canal disbursements payable from general fund	20,000,000.00	
Estimated retirements of national-bank notes in excess of deposits therefor	10,000,000.00	
Estimated miscellaneous redemptions of public debt	50,000.00	
		1,088,176,000.00
Estimated balance in general fund June 30, 1917		114,937,995.43

[1] The balance in the Treasury of $218,863,995.43 includes $41,286,057.56 disbursing officers' credits, after deducting outstanding checks, and is free of all current obligations, the entire amount being available for the future expenditures of the Government.

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Fiscal year 1918.

Estimated balance in general fund June 30, 1917		$114,937,995.43
Add—		
Estimated ordinary receipts	$995,550,000.00	
Estimated Panama Canal receipts, tolls, etc	10,000,000.00	
Estimated deposits for postal savings bonds	2,000,000.00	
		1,007,550,000.00
		1,122,487,995.43
Deduct—		
Estimated ordinary disbursements	1,278,021,000.00	
Estimated Panama Canal disbursements payable from general fund	20,000,000.00	
Estimated retirements of national-bank notes in excess of deposits therefor	10,000,000.00	
Estimated miscellaneous redemptions of public debt	50,000.00	
		1,308,071,000.00
Estimated *deficit* in general fund June 30, 1918		185,583,004.57

NOTE.—On account of the untried revenue laws relating to taxation of inheritances and war munitions, and the uncertainty as to the actual expenditures that may be made on account of the large program for preparedness, it is very difficult to estimate with accuracy the receipts and expenditures for the fiscal years ending June 30, 1917, and June 30, 1918, particularly for the latter year. These figures contain no estimate for the shipping act or nitrate plants, bonds having been authorized therefor.

Estimates, fiscal year 1918.

The estimates of appropriations for the fiscal year 1918, as submitted by the executive departments and offices, are as follows:

Legislative establishment		$7,691,626.45
Executive establishment:		
Executive proper	$639,330.00	
Department of State	509,220.00	
Treasury Department	14,265,805.00	
War Department proper	2,365,613.00	
State, War, and Navy Department Building, expenses	186,120.00	
Navy Department proper	1,130,090.00	
Department of Interior	5,609,017.00	
Post Office Department	1,765,760.00	
Department of Agriculture	26,096,907.00	
Department of Commerce	4,694,720.00	
Department of Labor	1,187,590.00	
Department of Justice	626,400.00	
		59,076,572.00
Judicial establishment		1,395,790.00
Foreign intercourse		5,700,626.66
Military establishment:		
Support of the Army	252,865,011.22	
Military Academy	2,058,673.30	
National Guard	45,771,000.00	
		300,694,684.52

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Naval Establishment, including increase of the Navy for new and prior Navy building programs, $96,962,200 and $118,946,155, respectively			$366,070,651.67
Indian affairs			12,230,356.67
Pensions			155,560,000.00
Public works:			
Legislative		$342,651.06	
Treasury Department, public buildings and works		14,119,114.00	
War Department—			
Military:			
Fortifications	$56,999,481.21		
Arsenals	6,435,700.00		
Military posts	8,841,890.23		
Rivers and harbors	32,136,063.96		
Other civil public works	1,062,134.00		
		105,475,269.40	
Panama Canal		25,145,562.35	
Navy Department		13,081,050.00	
Department of Interior, including reclamation fund		8,622,210.00	
Department of Commerce		2,604,300.00	
Department of Labor		547,900.00	
Department of Justice		325,900.00	
			170,263,956.81
Postal Service, payable from postal revenues			325,355,820.00
Miscellaneous:			
Legislative		5,489,401.40	
Executive		49,040.00	
Treasury Department		31,091,314.00	
War Department		6,344,280.00	
Department of Interior		17,697,328.64	
Department of Commerce		9,435,138.00	
Department of Labor		2,955,187.25	
Department of Justice		9,032,105.55	
District of Columbia		16,961,092.66	
Smithsonian Institution and National Museum		952,041.43	
Interstate Commerce Commission		5,600,000.00	
Board of Mediation and Conciliation		50,000.00	
Federal Trade Commission		732,810.00	
Arlington Memorial Bridge Commission		25,000.00	
Rock Creek and Potomac Parkway Commission		500,000.00	
			106,914,738.93

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Permanent annual appropriations:		
Interest on the public debt	$23,454,000.00	
Refunds—		
Customs and internal revenue $20,753,000.00		
Other refunds 10,735,833.00		
	31,488,833.00	
Sinking fund	60,748,000.00	
Miscellaneous	28,173,997.32	
		$143,864,830.32
Total estimated *appropriations* for 1918		1,654,819,654.03
Deduct:		
Postal Service payable from postal revenues, $325,355,820; sinking fund requirement, $60,748,000; Panama Canal, $25,145,562.35; an aggregate of		411,249,382.35
Total estimates for *ordinary appropriations* for 1918		1,243,570,271.68
Add estimates for Panama Canal appropriations for 1918		25,145,562.35
Total estimated *appropriations* for 1918, to become a charge upon the general fund without bond sales for the Panama Canal		1,268,715,834.03
Estimated ordinary receipts for 1918		995,550,000.00
Estimated ordinary disbursements for the year		1,278,021,000.00
Estimated excess of ordinary disbursements over ordinary receipts		282,471,000.00
Estimated total receipts for 1918		1,007,550,000.00
Estimated total disbursements for the year		1,308,071,000.00
Estimated excess of total disbursements over total receipts		300,521,000.00

POSTAL SERVICE.

The Post Office Department estimates that the postal revenues for the fiscal year 1918 will probably amount to $334,000,000, with expenditures for the Postal Service for the same period, under existing laws, of $325,300,000.

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ESTIMATES FOR 1918 AND APPROPRIATIONS FOR 1917.

Comparison of the estimates for 1918 with the appropriations for 1917 shows an increase in the 1918 estimates of $84,558,316.98, including the Panama Canal, as exhibited in the tables following:

Statement of estimates of appropriations for 1918 increased over appropriations for 1917.

[Excluding sinking-fund requirements and postal service payable from the postal revenues.]

Departments, etc.	1918 estimates, including permanent annual.	1917 appropriations, including permanent annual.	Increase, 1918 estimates over 1917 appropriations (+); decrease (−).
Legislative	$13,524,478.91	$13,920,825.75	− $396,346.84
Executive:			
Executive proper	302,820.00	584,780.00	− 281,960.00
Civil Service Commission	385,550.00	358,910.00	+ 26,640.00
Department of State:			
Department of State proper	509,220.00	487,180.00	+ 22,040.00
Foreign intercourse	5,806,626.66	8,961,302.58	− 3,154,675.92
Treasury Department:			
Treasury Department, exclusive of public buildings	67,360,119.00	55,491,778.91	+11,868,340.09
Farm loan banks—subscription to capital stock		9,000,000.00	− 9,000,000.00
Public buildings	13,279,114.00	9,414,260.00	+ 3,864,854.00
New Coast Guard cutters and stations	840,000.00	400,000.00	+ 440,000.00
War Department:			
War Department proper	2,991,903.00	2,551,181.33	+ 440,721.67
Military Establishment— (Estimates for Military Establishment for 1918, $373,046,755.96, including $144,000,000 for preparedness; appropriations for 1917, $323,021,378.66.)			
Army	252,940,011.22	257,063,580.10	− 4,123,568.88
Military Academy	2,058,673.30	1,225,043.57	+ 833,629.73
National Guard	45,771,000.00	30,885,450.00	+14,885,550.00
Fortifications	56,999,481.21	26,947,550.00	+30,051,931.21
Arsenals	6,435,700.00	5,214,395.00	+ 1,221,305.00
Military posts and miscellaneous	8,841,890.23	1,685,359.99	+ 7,156,530.24
Rivers and harbors	35,700,663.96	45,955,535.00	−10,254,871.04
Miscellaneous War, civil items	9,613,124.00	9,954,707.44	− 341,583.44
Navy Department:			
Navy Department proper	1,130,090.00	994,733.33	+ 135,356.67
Naval Establishment (Estimates for Naval Establishment for 1918, $381,367,446.67, including $217,860,000 for preparedness; appropriations for 1917, $314,619,048.24.)			
Naval Establishment, exclusive of building program	165,459,091.67	175,273,761.24	− 9,814,669.57
Navy building program, new	96,962,200.00	110,976,160.00	−14,013,960.00
Navy building program, prior years	118,946,155.00	28,369,127.00	+90,577,028.00
Department of the Interior:			
Department of the Interior, exclusive of Indians and pensions	35,171,055.64	30,693,752.83	+ 4,477,302.81
Pensions	155,560,000.00	158,065,000.00	− 2,505,000.00
Indians	19,430,356.67	18,185,855.85	+ 1,244,500.82
Post Office Department:			
Post Office Department, exclusive of Postal Service	1,765,760.00	1,987,078.00	− 221,318.00
Department of Agriculture	43,331,907.00	36,517,769.39	+ 6,814,137.61
Department of Commerce	16,737,158.00	12,053,250.00	+ 4,683,908.00
Department of Labor	4,690,677.25	3,693,717.37	+ 996,959.88
Department of Justice	11,555,695.55	10,768,399.17	+ 787,296.38
Independent offices:			
Smithsonian Institution and National Museum	1,011,793.75	637,256.00	+ 374,537.75
Interstate Commerce Commission	5,600,000.00	5,440,000.00	+ 160,000.00
Federal Trade Commission	732,810.00	444,080.00	+ 288,730.00
Board of Mediation and Conciliation	50,000.00	50,000.00	
Arlington Memorial Bridge Commission	25,000.00		+ 25,000.00
Arlington Memorial Amphitheater Commission		100,000.00	− 100,000.00
United States Shipping Board		50,100,000.00	−50,100,000.00
Employees Compensation Commission		550,000.00	− 550,000.00
Rock Creek and Potomac Parkway Commission	500,000.00	50,000.00	+ 450,000.00
State, War, and Navy Department Building	186,120.00	157,440.00	+ 28,680.00
Indigent in Alaska relief fund	25,000.00	25,000.00	
District of Columbia	17,885,025.66	13,751,097.20	+ 4,133,928.46
Interest on the public debt	23,454,000.00	23,300,000.00	+ 154,000.00
Ordinary	1,243,570,271.68	1,162,285,317.05	+81,284,954.63
Panama Canal	25,145,562.35	21,872,200.00	+ 3,273,362.35
Total	1,268,715,834.03	1,184,157,517.05	+84,558,316.98

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Exhibit of appropriations for 1917.

Appropriations made for the fiscal year 1917 and for prior years during the first session of the Sixty-fourth Congress, including revised estimated permanent and indefinite appropriations, and appropriations for the Postal Service payable from postal revenues		$1,628,411,644.81
Deduct:		
Postal Service for 1917 payable from the postal revenues	$322,737,679.00	
Postal deficiencies of prior years payable from postal revenues	3,755,329.82	
Deficiencies for prior years	57,034,118.94	
Sinking fund	60,727,000.00	
		444,254,127.76
Total appropriations for 1917, exclusive of sinking fund requirements, deficiencies, and Postal Service payable from postal revenues		1,184,157,517.05

Agreeing with the appropriations for 1917 shown in the preceding table, against which the estimates of appropriations submitted for 1918 show an increase of $81,284,954.63 in the ordinary and $84,558,316.98 including the Panama Canal.

Attention is respectfully called to further divisions of this report, to wit, the condensed annual reports of the various bureaus and divisions of the Treasury Department, and the tables accompanying the report on the finances.

W. G. McAdoo,
Secretary.

To the Speaker of the House of Representatives.

ABSTRACTS OF REPORTS OF BUREAUS AND DIVISIONS.

The following is a summary of the reports of bureaus and divisions of the Treasury Department for the fiscal year ended June 30, 1916, with the exception that the figures in relation to public moneys are brought down to November 1, 1916.

TREASURER OF THE UNITED STATES.

The ordinary revenues for the fiscal year 1916 were $779,664,552.49, an increase of $87,180,107.37 as compared with those of 1915; the increased receipts from customs, internal revenue (ordinary), emergency revenue, and corporation and individual income tax were $100,817,822.70, while decreased receipts are recorded in sales of public lands and from miscellaneous sources amounting to $13,637,715.33.

The total ordinary disbursements were $724,492,998.90, which by classified comparison with 1915 shows an increase on account of the Naval Establishment of $13,193,771.80, while decreased disbursements are recorded in the civil and miscellaneous accounts, the Military Establishment, the Indian Service, pensions, and interest on the

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public debt amounting to $18,804,364.70, so that the net result on ordinary expenditures was a decrease of $5,610,592.90. The surplus on ordinary transactions for the year was $55,171,553.59.

The receipts from the Panama Canal during the fiscal year 1916 were $2,869,995.28, while the expenses incurred amounted to $17,503,728.07. The net excess of disbursements was $14,633,732.79, which was paid out of the general fund of the Treasury.

Deposits for postal savings bonds, authorized by the act of June 25, 1910, were received during the fiscal year to the amount of $1,803,500. Under the provisions of the act of July 14, 1890, deposits of lawful money of the United States to retire national-bank notes were received amounting to $56,648,902.50, which, with the deposits for postal savings bonds, aggregate $58,452,402.50 in actual cash received on account of the public debt, while the cash disbursements on account of the principal of matured loans and fractional currency were $35,903 and for national-bank notes canceled and retired $24,633,010.50, a total disbursement for the debt of $24,668,913.50. The net result was an excess of receipts of $33,783,489.

On June 30, 1916, the balance in the general fund, including $55,129,185.82 to the credit of disbursing officers, was $235,925,945.68.

The redemptions from the reserve fund during the fiscal year were, in United States notes $70,684,405, and in Treasury notes $2,000, making a total of $70,686,405. The transactions were more in the nature of exchanges than a desire of the holders of these notes for gold. The redeemed notes were, under the provisions of the act of March 14, 1900, immediately exchanged for gold, and thereby the reserve was maintained in volume and character.

The gold in the Treasury at the close of the fiscal year 1916 amounted to $1,803,493,932.83, an increase of $420,533,943.65 as compared with like holdings in 1915. Set apart for the respective uses, it was held on the following accounts: Reserve fund, $152,979,025.63; trust funds (for redemption of gold certificates in actual circulation), $1,565,400,289; and in general fund (belonging to the Treasury), $85,114,618.20.

The imports of gold during the year were $494,009,301, the exports $90,249,548, and the net excess of imports, $403,759,753.

The currency distributed from the Treasury in Washington to the subtreasuries and to banks during the fiscal year 1916 amounted to $1,093,748,025, against $836,961,227 during the preceding 12 months.

The Secretary of the Treasury on November 24, 1915, designated the Federal reserve banks as depositaries and fiscal agents of the United States under section 15 of the Federal reserve act, effective on and after January 1, 1916, and until revoked. The deposits of all officers of the Government in Federal reserve cities, including Brooklyn and St. Paul, have since that date been made with the Federal reserve banks, with the exception of post-office funds and the deposits to the credit of United States courts and their officers. The Federal reserve banks have cashed Government warrants and checks drawn on the Treasurer of the United States in the same manner as national-bank depositaries. The amounts held by the national-bank depositaries in the Federal reserve cities at the close of business December 31, 1915, to the credit of the Treasurer of the United States were transferred to the Federal reserve banks in those cities, and the national-bank depositaries were discontinued, except as to such

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depositaries holding post-office and court funds. The balance of public moneys on deposit in the Federal reserve banks at the close of the fiscal year 1916 was $113,480,576.

The balance of public moneys on deposit in national-bank depositaries at the close of the fiscal year 1916 was $39,520,201.80.

The gold settlement fund inaugurated and established by the Federal Reserve Board in May, 1915, under the provisions of section 16 of the Federal reserve act, has been of great service in settling balances arising out of transactions among the 12 Federal reserve banks. The fund is in the custody of and operated under the direction of the Federal Reserve Board with the cooperation of the Treasury Department. The amount deposited in the fund during the last fiscal year was $224,970,000. If the Treasury finds it necessary to ship from one point to another funds to make payment on account of the said settlement fund, the Federal Reserve Board will refund any expenses incurred in making such shipments.

At the close of the fiscal year 1916 the general stock of money in the United States amounted to $4,482,859,133, an increase of $493,402,947 as compared with that of the preceding year. The growth in gold was $464,167,033, in silver $3,426,897, in Federal reserve notes $91,907,950, and in Federal reserve bank notes (a new kind of money issued during the year) $9,000,000, while the national-bank notes decreased $75,098,933. There was no change in the United States notes. The money in circulation increased in volume by $454,878,188 and amounted to $4,024,097,762 on June 30, 1916. The circulation per capita was $39.28 and the share of gold to whole circulation 50.97 per cent.

The notes and certificates of United States paper currency issued during the fiscal year numbered 358,838,465 pieces, of the total value of $1,510,334,000. The redemptions were 310,343,348 pieces, of the total value of $993,220,100. The pieces outstanding number 382,848,473, of the total value of $2,578,690,685. The average cost of each piece of United States paper currency issued and redeemed is about 1.526 cents, and the annual cost of maintenance of the currency issued by the National Government averages slightly more than one-fifth of 1 per cent of the amount outstanding.

During the fiscal year 1916 national-bank notes amounting to $522,923,441 were presented for redemption. This sum was 68 per cent of the average circulation outstanding. Of the notes received at the Treasury $86,938,900 were fit for use and were returned to the banks of issue for further circulation. The expenses incurred for redemption of national-bank notes during the year have been assessed upon the banks in proportion to their notes redeemed and was at the rate of $0.817229 per $1,000.

Federal reserve notes amounting to $41,065,305 were presented for redemption during the fiscal year 1916, of which $14,410,600 were fit for use and were returned to banks and agents for further circulation. There being only 12 Federal reserve banks, their notes can be assorted with more facility than national-bank notes, and this condition appears to warrant a difference in rates to bring about an equitable distribution of expense; therefore the rate charged Federal reserve banks on notes redeemed in the ordinary course of business was $0.41880208 per $1,000.

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The United States bonds pledged to secure bank circulation amounted to $690,440,930 on June 30, 1916, a decrease of $45,583,260 as compared with those of the preceding year. United States bonds and other securities amounting to $42,674,350 were held to secure public deposits in national banks. Under the provisions of the act of June 25, 1910, establishing the Postal Savings System, the Treasurer of the United States held in trust, as security for deposits in postal savings depositaries, bonds and securities amounting to $111,399,577.40 on June 30, 1916.

Silver dollars were shipped to depositors therefor at the expense of the consignee for transportation as usual during the fiscal year. The stock of such coins is $568,270,319, of which $501,855,387 are held in the Treasury for the redemption of outstanding Treasury notes and silver certificates, leaving in circulation $66,414,932 at the close of the fiscal year 1916. The stock of subsidiary silver coin is $188,858,483, of which $17,449,437 was held in the Treasury and the balance, $171,418,046, was in circulation on June 30, 1916.

The trust funds, gold and silver coins held to redeem outstanding notes and certificates, increased $387,987,402, and amounted to $2,057,409,391 at the close of the fiscal year. The increase in gold was $391,691,300, while the silver decreased $3,703,898.

District of Columbia.

The amount of the funded debt retired during the fiscal year 1916 was $338,100, while additional United States bonds have been purchased and are held for this fund.

The total issue of District of Columbia bonds was $14,997,300, and of this amount $8,817,400 has been redeemed, leaving the outstanding funded debt only $6,179,900, while there is held in trust against this amount $689,000 United States bonds.

At the close of the fiscal year 1916 the 10 per cent guaranty fund retained from District of Columbia contractors amounted to $254,652.69, and is represented by $72,498.93 cash and United States and District of Columbia bonds aggregating $176,250 and costing $182,153.76.

Detailed information in regard to the affairs of the District of Columbia will be found in the reports of the District Commissioners and the Treasurer of the United States, ex officio commissioner of the District of Columbia sinking fund.

COMPTROLLER OF THE CURRENCY.

On June 30, 1916, there were 7,588 national banks in operation, having an authorized capital of $1,070,858,375 and total circulation outstanding of $744,174,660, of which $686,583,635 was secured by United States bonds and $57,591,025 by deposits of lawful money in retirement account.

Charters for 10,869 national banks have been issued since the beginning of the national-banking system in 1863. Of this number, 2,739 banks voluntarily liquidated and 542 failed and were placed in charge of receivers. National-bank charters were issued to 117 associations during the 12 months ending June 30, 1916, which number includes 45 conversions of State banks, 13 reorganizations of State and private banks, and 59 primary organizations. The capital of the banks chartered during the year aggregated $7,505,000.

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From December 23, 1913, the date of the passage of the Federal reserve act, to June 30, 1916, 400 banks, having an aggregate capital of $31,544,500, were chartered. Of these banks, 262, with a capital of $6,899,500, were chartered with capital less than $50,000 each, and 138, with a capital of $24,645,000, the individual capital being $50,000 or more.

For the four years prior to the passage of the Federal reserve act the average number of conversions to the total number of banks chartered was 37.4 per cent, reorganizations 14.4 per cent, and primary organizations 48.2 per cent. Since that date the conversions have been 42 per cent, reorganizations 22 per cent, and primary organizations 36 per cent.

Of the banks chartered during the fiscal year 1916, 87, with aggregate capital of $2,280,000, or an average capital of about $26,000, were organized with capital of less than $50,000, and 30, with an aggregate capital of $5,225,000, an average capital of approximately $175,000, but none less than $50,000. It may be of interest to note that 87 of the 117 banks organized during this year did not take out circulation at the time of organization.

In the last fiscal year 145 national banks were closed voluntarily or otherwise, of which 13 (excluding the 2 restored to solvency) failed and were placed in charge of receivers and 132 were closed by voluntary liquidation. The net number of liquidations and failures, however, was 143, as 2 banks which failed in the previous year were restored to solvency.

Of the banks placed in voluntary liquidation, 75, with an aggregate capital of $6,703,000, were absorbed by or reorganized as State banks; 45, with an aggregate capital of $9,660,000, were consolidated with other national banks; and 12, with an aggregate capital of $1,190,000, discontinued business.

The capital of the 15 banks (including the two restored to solvency) for which receivers were appointed during the last fiscal year aggregated $935,000, while the liabilities to depositors and other creditors, at date of suspension, amounted to $3,838,414.88. Seven of the 15 banks placed in charge of receivers paid dividends as follows during the year: One 100 per cent, one 50 per cent, one 45 per cent, one 40 per cent, one 33⅓ per cent, one 25 per cent, one 10 per cent, while two, with capital aggregating $80,000 and liabilities to depositors and other general creditors amounting to $821,039.65, and two which had been placed in charge of receivers prior to July 1, 1915, with capital of $75,000 and liabilities to depositors and other general creditors amounting to $456,569.66, were permitted to resume business, having been restored to solvency by their shareholders.

From February 25, 1863, the date of the passage of the national-bank act, to June 3, 1864, the date on which the law was reenacted and amended, 456 national banks were chartered, and of this number 221 are still in operation. Under the act of 1864 charters were granted to 6,828 associations; under the gold-bank act of 1870 to 10 banks; and under the act of 1900 to 3,575 banks; or a total of 10,869 charters issued to July 1, 1916. The percentage of national banks closed, or which are being closed by receivers, is 5, and the percentage of voluntary liquidations is 25.2. The banks in active operation represent 69.8 per cent of the total number chartered.

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The act of March 14, 1900, authorized the incorporation of national banks with minimum capital of $25,000, permitted the issue of circulation to the par value of bonds deposited, and reduced the tax on circulating notes where secured by 2 per cent bonds. On that date 3,617 national banks were in operation, and from that date to July 1, 1916, there were 5,605 national banks, with capital aggregating $362,907,800, authorized to begin business, of which 3,575, with capital aggregating $93,235,000, were chartered under the act of March 14, 1900, with individual capital of less than $50,000. The average capital of this class of banks is $26,080. The great majority of these banks are being incorporated, however, with the minimum capital of $25,000. The remaining banks organized during the period, numbering 2,030, with capital of $269,672,800, an average of about $132,000, were incorporated under the act of 1864.

Comparing conditions on March 14, 1900, with those of June 30, 1916, a net increase of 3,971 is shown in the number of active national banks and an increase in authorized capital of $454,550,280. During that period the outstanding circulation increased from $254,402,730 to $744,174,660, or a net increase of $489,771,930.

The bond-secured circulation during the fiscal year 1916 decreased $38,729,506, or from $725,313,141 to $686,583,635. The amount of circulation secured by the deposit of lawful money decreased $35,649,866. The total decrease during the year of circulation secured by bonds and lawful money amounted to $75,098,933.

The number and capital of national banks organized since March 14, 1900, by State and geographical divisions, together with the number and paid-in capital stock of the banks on June 30, 1916, appear in the following table:

Summary, by States, geographical divisions, and classes, of national banks organized from Mar. 14, 1900, to June 30, 1916, and the paid-in capital stock of all reporting national banks on June 30, 1916.

States, etc.	Capital $25,000.		Capital over $25,000 and less than $50,000.		Capital $50,000 and over.		Total organizations.		National banks reporting on June 30, 1916.	
	No.	Capital.	No.	Capital.	No.	Capital.	No.	Capital.	No.	Capital paid in (in thousands).
NEW ENGLAND STATES										
Maine	5	$125,000	....	....	7	$385,000	12	$510,000	67	$7,415
New Hampshire	4	100,000	1	$30,000	2	200,000	7	330,000	56	5,285
Vermont	5	125,000	....	....	2	150,000	7	275,000	48	4,985
Massachusetts	2	50,000	....	....	19	4,450,000	21	4,500,000	158	52,543
Rhode Island	....	....	....	....	1	500,000	1	500,000	17	5,570
Connecticut	5	125,000	....	....	6	750,000	11	875,000	71	19,850
Total	21	525,000	1	30,000	37	6,435,000	59	6,990,000	417	95,648
EASTERN STATES.										
New York	125	3,125,000	10	317,500	108	19,870,000	243	23,312,500	477	167,355
New Jersey	62	1,550,000	8	240,000	44	3,710,000	114	5,500,000	202	22,220
Pennsylvania	238	5,950,000	24	807,000	232	24,790,000	494	31,547,000	833	117,719
Delaware	6	150,000	3	95,000	....	....	9	245,000	24	1,664
Maryland	32	800,000	5	172,000	13	1,480,000	50	2,452,000	97	16,230
District of Columbia	....	....	....	....	7	2,175,000	7	2,175,000	14	7,159
Total	463	11,575,000	50	1,631,500	404	52,025,000	917	65,231,500	1,647	332,347

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Summary by States, geographical divisions, and classes, of national banks organized from Mar. 14, 1900, to June 30, 1916, and the paid-in capital stock of all reporting national banks on June 30, 1916—Continued.

States, etc.	Capital $25,000.		Capital over $25,000 and less than $50,000.		Capital $50,000 and over.		Total organizations.		National banks reporting on June 30, 1916.	
	No.	Capital.	No.	Capital.	No.	Capital.	No.	Capital.	No.	Capital paid in (in thousands).
SOUTHERN STATES.										
Virginia	59	$1,475,000	13	$471,000	51	$5,740,000	123	$7,686,000	143	$18,989
West Virginia	42	1,050,000	15	525,000	44	3,565,000	101	5,140,000	117	10,067
North Carolina	24	600,000	6	195,000	36	3,885,000	66	4,680,000	79	8,860
South Carolina	20	500,000	3	102,000	42	4,550,000	65	5,152,000	74	9,141
Georgia	27	675,000	20	675,000	55	5,250,000	102	6,600,000	110	14,623
Florida	11	275,000	7	225,000	32	5,775,000	50	6,275,000	56	7,260
Alabama	38	950,000	12	379,500	40	3,935,000	90	5,264,500	90	10,550
Mississippi	9	225,000	4	125,000	27	2,515,000	40	2,865,000	35	3,875
Louisiana	14	350,000	1	30,000	23	4,210,000	38	4,590,000	31	7,410
Texas	250	6,250,000	93	2,998,500	164	20,985,000	507	30,233,500	531	53,790
Arkansas	30	750,000	3	95,000	36	2,730,000	69	3,575,000	67	5,521
Kentucky	55	1,375,000	7	230,000	36	5,370,000	98	6,975,000	139	17,226
Tennessee	39	975,000	9	270,000	42	4,945,000	90	6,190,000	114	14,500
Total	618	15,450,000	193	6,321,000	628	73,455,000	1,439	95,226,000	1,586	181,812
MIDDLE WESTERN STATES.										
Ohio	111	2,775,000	19	658,000	91	13,075,000	221	16,508,000	373	62,514
Indiana	94	2,350,000	16	513,000	75	10,950,000	185	13,813,000	256	28,247
Illinois	182	4,550,000	21	733,500	103	15,100,000	306	20,383,500	471	76,190
Michigan	20	500,000	6	190,000	30	11,015,000	56	11,705,000	105	17,670
Wisconsin	43	1,075,000	5	160,000	32	3,650,000	80	4,885,000	137	18,425
Minnesota	190	4,750,000	18	566,000	33	5,250,000	241	10,566,000	281	29,171
Iowa	124	3,100,000	23	770,000	73	4,470,000	220	8,340,000	351	24,104
Missouri	38	950,000	16	510,000	43	16,135,000	97	17,595,000	131	35,910
Total	802	20,050,000	124	4,100,500	480	79,645,000	1,406	103,795,500	2,105	292,231
WESTERN STATES.										
North Dakota	135	3,375,000	7	215,000	11	600,000	153	4,190,000	155	5,750
South Dakota	87	2,175,000	6	190,000	16	1,100,000	109	3,465,000	124	5,260
Nebraska	104	2,600,000	20	715,000	39	3,395,000	163	6,710,000	196	14,545
Kansas	101	2,525,000	12	420,000	33	2,600,000	146	5,545,000	220	12,952
Montana	34	850,000	6	195,000	17	1,540,000	57	2,585,000	69	5,650
Wyoming	15	375,000	2	70,000	12	675,000	29	1,120,000	36	2,030
Colorado	57	1,425,000	12	396,000	38	3,310,000	107	5,131,000	121	10,255
New Mexico	25	625,000	4	125,000	11	625,000	40	1,375,000	37	2,265
Oklahoma	376	9,400,000	32	1,040,000	72	5,455,000	480	15,895,000	335	14,980
Total	934	23,350,000	101	3,366,000	249	19,300,000	1,284	46,016,000	1,293	73,687
PACIFIC STATES.										
Washington	38	950,000	2	70,000	35	3,795,000	75	4,815,000	77	11,460
Oregon	36	900,000	3	91,000	27	2,295,000	66	3,286,000	82	10,066
California	123	3,075,000	6	190,000	130	28,112,800	259	31,377,800	261	58,423
Idaho	34	850,000	6	200,000	16	1,160,000	56	2,210,000	57	3,600
Utah	7	175,000	1	30,000	6	1,275,000	14	1,480,000	23	3,355
Nevada	3	75,000	....	.....	9	1,225,000	12	1,300,000	10	1,435
Arizona	4	100,000	1	30,000	5	250,000	10	380,000	13	1,225
Alaska	1	25,000	....	.....	1	50,000	2	75,000	3	125
Total	246	6,150,000	19	611,000	229	38,162,800	494	44,923,800	526	89,689
ISLAND POSSESSIONS.										
Hawaii	3	75,000	....	.....	2	550,000	5	625,000	5	635
Porto Rico	....	.....	....	.....	1	100,000	1	100,000	....	.....
Total	3	75,000	....	.....	3	650,000	6	725,000	5	635
Grand total	3,087	77,175,000	488	16,060,000	2,030	269,672,800	5,605	362,907,800	7,579	1,066,049

The table following shows the total number of national banks organized, insolvent, in voluntary liquidation, and in active operation on June 30, 1916, by States and geographical divisions.

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Number of national banks organized, insolvent, in voluntary liquidation, and in operation on June 30, 1916.

States.	Organized.	Insolvent.	In liquidation.	In operation.	States.	Organized.	Insolvent.	In liquidation.	In operation.
Maine	111	.....	44	67	Wisconsin	204	6	61	137
New Hampshire	71	4	11	56	Minnesota	352	9	61	282
Vermont	75	7	20	48	Iowa	469	16	102	351
Massachusetts	313	15	140	158	Missouri	229	12	85	132
Rhode Island	65	1	47	17					
Connecticut	111	5	35	71	Total Middle States	3,070	126	837	2,107
Total New England States	746	32	297	417	North Dakota	196	14	27	155
					South Dakota	162	12	26	124
New York	726	50	196	480	Nebraska	332	22	114	196
New Jersey	238	10	26	202	Kansas	365	37	108	220
Pennsylvania	1,014	42	137	835	Montana	101	11	21	69
Delaware	28	.....	4	24	Wyoming	44	2	6	36
Maryland	123	1	25	97	Colorado	172	13	38	121
District of Columbia	26	3	9	14	New Mexico	57	5	15	37
					Oklahoma	511	8	168	335
Total Eastern States	2,155	106	397	1,652	Total Western States	1,940	124	523	1,293
					Washington	153	24	52	77
Virginia	178	6	29	143	Oregon	108	7	19	82
West Virginia	145	3	25	117	California	311	7	42	262
North Carolina	107	6	21	79	Idaho	70	3	9	58
South Carolina	86	1	12	74	Utah	31	1	7	23
Georgia	147	10	27	110	Nevada	15	2	3	10
Florida	76	11	9	56	Arizona	18	1	4	13
Alabama	131	9	32	90	Alaska	3	.....	.....	3
Mississippi	57	2	20	35					
Louisiana	66	7	28	31	Total Pacific States	709	45	136	528
Texas	787	34	222	531					
Arkansas	83	6	10	67	Hawaii	5	.....	.....	5
Kentucky	211	6	66	139	Porto Rico	1	.....	1	.....
Tennessee	169	8	47	114					
					Total island possessions	6	.....	1	5
Total Southern States	2,243	109	548	1,586					
					Total of United States	10,869	542	2,739	7,588
Ohio	594	30	191	373					
Indiana	375	15	104	256					
Illinois	622	22	129	471					
Michigan	225	19	104	105					

The authorized capital stock of national banks at the close of business on the last day of each month, July, 1915, to June, 1916, together with circulation outstanding secured by United States bonds and lawful money in retirement account, is shown in the following table:

	Authorized capital.	United States bonds.	Lawful money.	Total circulation outstanding.
July	$1,076,421,175	[1] $723,802,559	$80,798,814	$804,601,373
August	1,077,016,375	[1] 723,160,609	70,626,198	793,786,807
September	1,078,566,375	[1] 722,941,584	63,794,876	786,736,460
October	1,079,321,375	[1] 722,926,127	56,991,554	779,917,681
November	1,077,601,375	[1] 720,688,553	55,677,100	776,365,653
December	1,077,501,375	719,571,758	51,765,450	771,337,208
1916.				
January	1,074,111,375	718,923,490	47,468,578	766,392,068
February	1,073,831,375	711,129,418	51,866,895	762,996,313
March	1,072,838,375	702,730,413	55,706,278	758,436,691
April	1,071,025,875	693,132,610	60,622,296	753,754,906
May	1,070,713,375	686,634,103	62,045,070	748,679,173
June	1,070,858,375	686,583,635	57,591,025	744,174,660

[1] Includes miscellaneous securities deposited under the act of May 30, 1908, as amended December 23, 1913, and August 4, 1914, for one national bank in Pennsylvania that was found to be insolvent and was placed in charge of a receiver.

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In connection with the statistics submitted relative to the organization, capital, and circulation of national banks since 1900, it is interesting to note the increase in the banking business generally, as evidenced by the reports of condition of February 13, 1900, the date of the call immediately preceding the legislation authorizing the incorporation of banks with a minimum capital of $25,000, etc., and those for June 30, 1916. The total assets of banks increased from $4,674,910,713.09 to $13,926,868,000, loans from $2,481,579,945.35 to $7,679,167,000, paid-in capital stock from $613,084,465 to $1,066,049,000, outstanding circulation from $204,912,546 to $676,116,000, and individual deposits from $2,481,847,035.62 to $8,143,048,000, which latter amount includes $99,436,000 United States and postal savings deposits.

Comparison of returns for June 23, 1915, with those of June 30, 1916, shows a decrease in the number of reporting banks on the latter date of 26 and an increase in loans and discounts of $1,019,196,000. Specie held decreased $38,062,000 and legal-tender notes increased $6,284,000. Investments in United States bonds, including premiums, decreased $52,249,000. The increase in other bonds, securities, etc., was $337,704,000, and stocks decreased $864,000. Of the liabilities of the banks, capital stock decreased during the past year $2,470,000, surplus and undivided profits increased $395,000, individual deposits, exclusive of United States and postal savings deposits, increased $1,522,716,000. The aggregate resources increased in the sum of $2,131,183,000.

The number and capital of State banks converted, reorganized banks, and banks of primary organization since March 14, 1900, classified by capital stock, are shown in the following table:

Classification.	Conversions.		Reorganizations.		Primary organizations.		Total.	
	No.	Capital.	No.	Capital.	No.	Capital.	No.	Capital.
Capital less than $50,000.	575	$15,282,500	1,040	$27,537,000	1,960	$50,415,500	3,575	$93,235,000
Capital $50,000 or over...	403	57,427,800	622	94,225,000	1,005	118,020,000	2,030	269,672,800
Total.....	978	72,710,300	1,662	121,762,000	2,965	168,435,500	5,605	362,907,800

The number of banks and the bond and circulation accounts on March 14, 1900, and June 30, 1916, together with the increase between these periods, are shown in the accompanying table:

	Mar. 14, 1900.	June 30, 1915.	June 30, 1916.	Increase 1900 to 1916.	Decrease 1915 to 1916.
Number of banks.....	3,617	7,614	7,588	3,971	26
Authorized capital.....	$616,308,095	$1,076,301,175	$1,070,858,375	$454,550,280	$5,442,800
Bonds on deposit.....	244,611,570	736,024,190	690,440,930	445,829,360	45,583,260
Miscellaneous securities on deposit, issue value.....	.....	[1] 719,561	.....	.....	719,561
Circulation on bonds.....	216,374,795	725,313,141	686,583,635	470,208,840	38,729,506
Circulation on miscellaneous securities.....	.....	[1] 719,561	.....	.....	719,561
Circulation on lawful money.....	38,027,935	93,240,891	57,591,025	19,563,090	35,649,866
Total circulation.....	254,402,730	819,273,593	744,174,660	489,771,930	75,098,933

[1] Authorized by act of May 30, 1908, as amended Dec. 23, 1913, and Aug. 4, 1914.

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MINT SERVICE.

Operations of the mints.

The following Mint Service institutions were operated during the fiscal year 1916: Coinage mints at Philadelphia, San Francisco, and Denver; assay office at New York, which has a large trade in bars of fine gold and silver; mints at New Orleans and Carson City conducted as assay offices and assay offices at Seattle, Boise, Helena, Salt Lake City, and Deadwood, these being bullion-purchasing agencies for the large institutions. Refineries were operated at the New York, Denver, and San Francisco institutions.

The value of the gold acquired by the Government at the mints and assay offices during the fiscal year 1916 was $508,083,262.92, the largs increase over last year being due principally to the heavy importatione of foreign bullion and coin; gold deposited by the Cuban Government to be made into Cuban coin was of value $1,323,291.98; United States gold coin received for recoinage was of value $1,959,695.71; transfers of gold between Mint Service offices totaled $58,261,256.84; making an aggregate of gold handled by the Mint Service during the fiscal year 1916 of $569,627,507.45.

Silver purchased during the fiscal year 1916 totaled 6,545,161.96 fine ounces, costing $3,348,642.49, at an average price of 51 cents per fine ounce; the silver received and repaid to the depositors thereof in bars bearing the Government stamp totaled 3,362,233.24 fine ounces; the silver deposited by foreign Governments to be worked into coin totaled 2,233,346.96 fine ounces; the United States silver coin received for recoinage totaled 566,469.45 fine ounces, with recoinage value of $783,092.35; the Philippine silver coins received for recoinage totaled 138,067.48 fine ounces; the transfers of silver between Mint Service offices totaled 815,800.16 fine ounces, making an aggregate quantity of silver handled by the Mint Service during the fiscal year 1916 of 13,661,079.25 fine ounces. The large increase over last year of silver purchased was due to open-market purchases for subsidiary coinage early in the fiscal year when the price of silver was unusually low.

The United States coinage for the fiscal year 1916 amounted to $37,209,062.82, of which $31,077,409 was gold, $3,328,882.50 was silver, $1,790,468.15 was nickel, and $1,012,303.17 was bronze. This amount includes $19,534 in $1 gold pieces struck at the San Francisco Mint for the Panama-Pacific International Exposition.

There were also coined at the Philadelphia Mint 3,092,890 gold pieces, 11,574,450 silver pieces, and 25,912,150 nickel pieces for Cuba; 852,663 silver pieces for Colombia; 1,000,000 silver pieces for Ecuador; 1,000,000 nickel pieces for Salvador; 2,000,000 nickel pieces for Venezuela; 100,000 gold planchets and 500,829 silver planchets for Peru. The mint at San Francisco coined for the Philippine Islands 1,435,000 silver pieces and 5,500,000 bronze pieces.

The seigniorage on United States coinage executed totaled $4,046,740.26, of which $1,650,774.94 was on subsidiary silver coins and $2,395,965.32 was on minor coins.

Stock of coin and bullion in the United States.

On June 30, 1916, the estimated stock of domestic coin in the United States was $2,403,210,953, of which $1,646,050,150 was gold,

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$568,270,515 was silver dollars, and $188,890,288 was subsidiary silver coin.

The stock of gold bullion in the mints and assay offices on the same date was valued at $804,466,177.70, an increase over last year of $437,541,008.45, and the stock of silver bullion was 10,835,173.88 fine ounces, an increase over last year of 3,529,339.72 fine ounces.

Production of gold and silver.

The production of the precious metals in the United States during the calendar year 1915 was as follows: Gold, $101,035,700, and silver, 74,961,075 fine ounces.

Industrial arts.

The amount of gold consumed in the industrial arts during the calendar year 1915 was $35,376,739, of which $27,156,219 was new material. Silver consumed amounted to 29,891,271 fine ounces, of which 22,889,400 fine ounces was new material.

Imports of gold coin.

The net imports of United States gold coin for the fiscal year 1916 were $14,609,360.

Appropriations, expenses, and income.

The appropriated amounts available for the Mint Service use during the fiscal year 1916 totaled $1,175,786.88, reimbursements to appropriations for services rendered amounted to $248,037.69, making an available total of $1,423,824.57.

The expenses chargeable to appropriations were $1,217,731.89, those chargeable to income $10,297.17; total, $1,228,029.06.

The income realized by the Treasury from the Mint Service totaled $4,985,174.89, of which $4,046,740.26 was seigniorage.

Income and expenses are itemized as follows:

INCOME.

Earnings:			
Credited to appropriations—			
Charges on foreign coinage executed	$233,676.33		
Charges for manufacture of special medals	8,089.78		
Charges for work done for other institutions, etc	6,271.58		
Total earnings credited to appropriations		$248,037.69	
Credited to revenues—			
Mint charges on bullion	402,818.83		
Proceeds of medals and proof coins sold	4,170.39		
Receipts from special assays of bullion and ores	3,148.00		
Total earnings credited to revenues		410,137.22	
Total earnings			$658,174.91

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Profits:			
Gain on bullion shipments to refineries	$831.40		
Less contra losses	28.13		
		$803.27	
Surplus bullion recovered		92,138.08	
Proceeds of sale of by-products (platinum, etc.)		186,277.59	
Proceeds of sale of old materials		918.99	
Miscellaneous items		121.79	
Total profits other than seigniorage			$280,259.72
Seigniorage on subsidiary silver coinage		1,650,774.94	
Seigniorage on minor coinage—			
Nickel		1,544,467.94	
Bronze		851,497.38	
Total seigniorage			4,046,740.26
Total profits			$4,326,999.98
Total income			4,985,174.89

EXPENSES.

Chargeable to appropriations:			
Compensation of employees—			
Mint Bureau, salaries appropriation		$24,506.67	
Mints and assay offices, salaries appropriation		246,908.38	
Mints and assay offices, wages appropriation		663,915.37	
Total compensation of employees			$935,330.42
Equipment, stores, and other expenses—			
Mint Bureau contingent appropriation		5,438.94	
Mints and assay offices, contingent appropriation (including $3,560.46 wastage of gold and silver in operative departments, and $3,470.05, loss on assay value of operative sweeps sold)		256,027.16	
Transportation of bullion and coin between mints and assay offices, freight appropriation		20,935.37	
Total miscellaneous expenses chargeable to appropriations			282,401.47
Total expenses chargeable to appropriations			$1,217,731.89
Chargeable to revenue:			
Seigniorage on minor coinage—			
Expenses of distributing minor coin to Treasury offices		7,926.06	
Wastage of minor metals in operative departments		2,371.11	
Total chargeable to revenue			10,297.17
Total expenses			1,228,029.06
Net income of the Government from the Mint Service			3,757,145.83
			4,985,174.89

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Deposits, income, expenses, and employees by institutions.

The number and value of deposits, the income (including seigniorage), the expenses of the fiscal year 1916, and the number of employees on June 30, 1916, at each institution, are given below:

Institution.	Number of—		Coining value of gold and silver deposits and purchases.	Income.	Expenses.[1]	Transportation of bullion and coin.	Employees June 30, 1916.
	Deposits.	Redeposits.					
Philadelphia	10,544	529	$56,915,654.99	$2,689,414.90	$508,024.36	$8.96	353
San Francisco	16,097	487	112,136,518.93	608,631.97	201,223.43	44.42	119
Denver	3,194	477	21,244,407.69	1,252,462.46	174,374.81	7.20	93
New York	9,168	131	305,160,954.07	409,926.04	220,947.26	6,322.74	104
New Orleans	518	1	690,960.46	2,266.31	12,353.70	397.86	10
Carson City	612	.....	324,787.70	5,858.89	7,373.48	198.29	5
Boise	911	.....	1,137,420.43	3,525.36	8,178.09	978.22	6
Helena	598	.....	1,176,933.93	5,102.55	9,069.57	982.36	5
Deadwood	97	.....	661,392.18	2,033.63	6,789.44	276.32	5
Seattle	2,435	1	10,435,908.93	5,072.22	42,632.85	11,673.46	18
Salt Lake City	147	.....	48,722.28	908.69	3,844.59	45.54	2
Total	44,321	1,626	509,933,661.59	4,985,203.02	1,194,811.58	20,935.37	720

[1] Includes transportation of bullion and coin between mints and assay offices.

INTERNAL REVENUE.

The receipts from internal-revenue taxes for the fiscal year 1916, as shown by collectors' reports, were as follows:

Ordinary receipts, including the emergency revenue	$387,786,035.16
Income-tax receipts	124,937,252.61
Total	512,723,287.77
Net increase over 1915	97,042,263.91

The ordinary receipts for 1916, including the emergency revenue (act of Oct. 22, 1914, which was extended to and including Dec. 31, 1916, by joint resolution approved Dec. 17, 1915), show a net increase of $52,306,770.16 for the year.

The ordinary receipts, excluding the emergency revenue, show increases from the following sources:

Distilled spirits	$13,385,692.80
Manufactured tobacco, snuff, cigars, and cigarettes	7,853,337.28
Miscellaneous	13,891.59
Total	21,252,921.67
Less decrease in receipts from fermented liquors	1,155,327.35
Net increase in this comparison	20,097,594.32

The emergency revenue, collected during the fiscal year 1916 under the several general classifications as designated in the act, was as follows:

Wines, champagne, liqueurs, cordials, etc	$2,631,529.98
Grape brandy used in fortification of sweet wines	491,202.91
Fermented liquors (additional 50 cents per barrel)	29,311,164.50
Special taxes relating to manufacture and sale of tobacco, cigars, and cigarettes	2,739,853.05
Special taxes, including bankers, brokers, theaters, bowling alleys, etc.	6,908,108.21
Schedule A (documentary stamps, etc.)	38,110,282.49
Schedule B (perfumery, cosmetics, etc.)	4,086,160.99
Total	84,278,302.13

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The income-tax receipts from corporations aggregated $56,972,720.88 as compared with $39,144,531.71 collected during the fiscal year 1915. There was also collected $20,937.10 on account of income tax on railroads in Alaska as compared with $11,065.06 collected in 1915. During the month of July, 1916, $3,740,853.06 was collected from corporations, nearly all of which was upon assessments made during the fiscal year just closed. This amount, while due and payable last fiscal year, will now, owing to date of its payment, be included with the collections for the fiscal year 1917.

The income-tax receipts from individuals aggregated $67,943,594.63, or $26,897,432.54 in excess of the amount collected during the preceding year. There was collected $4,280,478.89 during July, 1916, which likewise practically represents and is included in assessments made during the fiscal year ended June 30, 1916.

The total expenditures of the Internal-Revenue Service during the fiscal year 1916 amounted to $7,199,163.32. This does not include expenditures amounting to $43,337.68 made from the appropriation "Refunding internal-revenue collections," as such payments were in no sense an expense incident to the cost of collection.

The cost of collecting $1 of internal revenue was $0.014.

Receipts from internal revenue, 1915 and 1916.

Sources.	Fiscal year ended—		Increase.	Decrease.
	June 30, 1915.	June 30, 1916.		
Distilled spirits	$144,619,699.37	[1] $158,682,439.53	$14,062,740.16	
Manufactured tobacco	79,957,373.54	[2] 88,063,947.51	8,106,573.97	
Fermented liquors	79,328,946.72	[3] 88,771,103.99	9,442,157.27	
Oleomargarine	1,695,256.95	1,485,970.72		$209,286.23
Mixed flour	5,255.94	2,566.74		2,689.20
Adulterated butter	23,085.05	41,490.60	18,405.55	
Process or renovated butter	99,612.50	88,760.89		10,851.61
Special taxes, including bankers, brokers, theaters, bowling alleys, etc.	4,967,179.18	6,908,108.21	1,940,929.03	
Schedule A (documentary stamps, etc.)	20,494,474.75	38,110,282.49	17,615,807.74	
Schedule B (perfumery, cosmetics, etc.)	2,961,490.59	4,086,160.99	1,124,670.40	
Miscellaneous	1,326,890.41	[4] 1,545,203.49	218,313.08	
Total ordinary receipts including emergency revenue	335,479,265.00	387,786,035.16	52,529,597.20	222,827.04
Alaska railroad income tax	11,065.06	[5] 20,937.10	9,872.04	
Corporation income tax	39,144,531.71	56,972,720.88	17,828,189.17	
Individual income tax	41,046,162.09	67,943,594.63	26,897,432.54	
Total income tax	80,201,758.86	124,937,252.61	44,735,493.75	
Aggregate receipts	415,681,023.86	512,723,287.77	97,265,090.95	222,827.04
Net increase			97,042,263.91	

[1] Includes $2,631,529.98 from wines, champagne, liqueurs, cordials, etc., and $491,202.91 from grape brandy used in fortification of sweet wines (act of Oct. 22, 1914, as extended Dec. 17, 1915).

[2] Includes $259,097.63 from sale of internal-revenue stamps affixed to Philippine products (act of Aug. 5, 1909) and $2,739,853.05 from special taxes relating to manufacture and sale of cigars, cigarettes, and tobacco (act of Oct. 22, 1914, as extended Dec. 17, 1915).

[3] Includes $29,311,164.50 from the additional tax (50 cents per barrel) on fermented liquors (act of Oct. 22, 1914, as extended Dec. 17, 1915).

[4] Includes $819,654.20 from playing cards; $175 from opium manufactured for smoking purposes; $244,897.07 from manufacturers, importers, or distributors of opium, etc. (act of Dec. 17, 1914); and $480,477.22 from accepted offers in compromise, unassessed penalties, interest, etc.

[5] Collected under an act approved July 18, 1914.

Distilled spirits.

During the past fiscal year there were produced from material other than fruit 249,123,921.8 taxable gallons of spirits, an increase

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of 116,989,769.6 gallons as compared with the production of like spirits during the fiscal year 1915. This increase, consisting mainly of alcohol and other high-proof spirits, was in a large measure due to the unusual demand for this class of spirits for export and for denaturation.

The quantity of spirits removed in bond, free of tax, for above-mentioned purposes during the last two fiscal years was:

	1915.	1916.	Increase.
	Proof gallons.	*Proof gallons.*	*Proof gallons.*
For export	1,662,658.9	39,010,136.4	37,347,477.5
For denaturation	25,411,718.8	83,828,432.9	58,416,714.1
Total increase over 1915			95,764,191.6

The production of fruit brandies during the fiscal year 1916 was 4,159,351.6 gallons, as against 8,521,951 gallons in 1915, a decrease of 4,362,599.4 gallons. During the fiscal year 1916, 605 distilleries of all kinds were operated, a decrease of 30 as compared with the preceding year.

Fortified wines.

There were fortified during the fiscal year 1916, 6,284,003.5 gallons of wine and the records of the office show that the quantity of brandy used for this purpose amounted to 1,257,399 taxable gallons. The quantity of wines so fortified during that year was far below the quantity (14,681,924.5 gallons) of like wines fortified during the preceding year.

By the act of June 7, 1906, a charge of 3 cents per gallon was assessed on brandy used in fortifying wines, and up to the passage of the emergency revenue act of October 22, 1914, imposing a tax of 55 cents per gallon on the brandy so used, the wines fortified during that period averaged about 16,000,000 gallons annually. The noticeable decrease in the quantity of wines fortified during the past year was doubtless due to the comparatively high rate of tax imposed on the brandy used.

Fermented liquors.

The production of fermented liquors during the fiscal year 1916 was 58,633,624 barrels, as against 59,808,210 barrels for 1915, a decrease of 1,174,586 barrels. In 1916, 58,564,508 barrels of fermented liquors were withdrawn tax paid for consumption and 69,116 barrels exported (in bond) free of tax, while in 1915, 59,746,701 barrels were tax paid and 61,509 barrels exported.

Exportation of tobacco, etc.

The quantity of manufactured tobacco exported, free of tax, during the fiscal year 1916 was 4,926,559 pounds, or an increase of 1,028,639 pounds exported during the preceding fiscal year. The numbers of cigars and cigarettes exported, free of tax, during the fiscal year 1916, were 728,625 and 94,224,000, respectively, or an increase of 395,525 cigars and 63,997,910 cigarettes as compared with the year 1915.

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Dealers in leaf tobacco, etc.

In previous reports attention was called to the weakness of the statutes relating to the business of dealers in leaf tobacco. The recommendation heretofore made is again renewed—that section 3360 of the Revised Statutes should be amended so as to require every dealer in leaf tobacco to give a bond, the penalty of which should be fixed by the collector according to the amount of business to be done; to make a true inventory of stock on hand on January 1 of each year, and to render monthly report of his transactions to the collector for the district within 10 days after the close of the month. The commissioner should be given authority to make assessments for tax on tobacco not properly accounted for by leaf dealers. It is also again recommended that section 26 of the act of October 1, 1890, be amended so as to require registry of manufacturers of cigars, manufacturers of tobacco, dealers in leaf tobacco, and peddlers of tobacco on commencement of business only and not on July 1 of each year, as required when special taxes on these classes of persons are not in force.

Adulterated butter.

A considerable increase in the number of violations of the act of May 9, 1902, known as the adulterated-butter law, is reported for the fiscal year ended June 30, 1916, as compared with the preceding fiscal year. The greater portion of these violations consisted in the manufacture and sale of creamery butter containing 16 per cent or more of moisture which had been accidentally or unintentionally incorporated therein by the producers, and in all such cases where these facts were shown prosecutions were not instituted, but the cases were dropped upon payment of the special and stamp taxes imposed by the law or by compromise where the manufacturers were financially unable to pay the taxes reported due.

A new class of violations of this act was discovered in considerable numbers in some of the large cities during the past year, and in every such case prosecution was instituted in addition to assessment of special and stamp taxes imposed by the law. This new class consisted of dealers in butter who purchased the product from creameries and added thereto water ranging from 30 to 50 per cent and afterward sold it as creamery butter. This illicit business gave every indication of assuming large proportions until sweeping investigations were made and criminal actions pressed and the offenders convicted. These drastic steps, it is confidently believed, will effectually stamp out this form of fraud upon the public wherever it may develop.

It is again recommended that the act of May 9, 1902, be amended and that some definite standard of moisture or butter-fat content be fixed by the statute for the different classes of butter defined by the act of August 2, 1886, as amended by this latter act.

The present law imposes entirely too heavy penalties upon manufacturers of butter who unknowingly and unintentionally place upon the market butter containing 16 per cent or more of moisture, and likewise upon dealers who innocently purchase and sell such product, but in any revision adequate penalties should be provided for the class of violators above described.

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Oleomargarine.

Investigations of violations of the oleomargarine law were continued during the fiscal year ended June 30, 1916, and while the cases discovered were not of the same importance as those reported during the two preceding fiscal years, the results accomplished during the past year were of great value in the protection both of the revenues and to the public against frauds.

A majority of the cases reported during 1916 involved illicit manufacturers, who purchased the white product, added artificial coloration thereto and afterward disposed of it, in many instances as creamery butter, in evasion of the stamp tax of 10 cents per pound due on the goods and special tax as manufacturer and dealer.

In all of these cases where the facts showed willful violation indictments were secured, and up to the close of the fiscal year a number of prosecutions were completed, resulting in convictions and sentences of heavy fines or terms of imprisonment, or both, being imposed by the court.

The prosecutions pending at the close of the fiscal year 1915 in three of the large cases discovered during 1914 were vigorously pressed the past year and the most important one brought to trial, and all of the principals were convicted and sentenced to pay fines and serve terms in prison. By reason of the various legal technicalities, prosecutions in the other two cases have been delayed and are yet pending.

A summary of the results of investigations made during the last year shows a large decrease in the number of violations discovered, which might be taken as an indication that the requirements of this law are being more scrupulously observed because of the vigorous enforcement during the past three years, but it is evident that as long as the double rate of taxation remains in force frauds upon the revenues and the public will continue, despite the efforts made to suppress them.

A thorough and careful revision of this law to make it in fact a revenue measure and at the same time provide the strongest possible remedies for protection against fraud is again recommended for your consideration.

Narcotic law.

At the close of the fiscal year ended June 30, 1916, the act of December 17, 1914, known as the "Harrison narcotic law," had been in effect 16 months, and observations of the operation of the law during that period have given the administrative officers of the department a better view of the conditions which the act apparently was intended to remedy, and also of several serious defects in the law and the urgent need of remedial legislation.

The results of the enforcement of this act for the 12 months ended June 30, 1915, emphasize the need for amendatory legislation and confirm the views and recommendations set forth in the annual report for 1915.

During the fiscal year ended June 30, 1916, approximately 18,000 violations of this act were reported, which included those of a technical nature and also violations of the regulations issued under authority of the law, and a large number of the violations were by persons registered in accordance with the provisions of the law. All

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of the cases involving only technical or unintentional violation of the law and regulations were dropped without criminal action upon satisfactory evidence that there was no intent to evade the provisions of the act, and those cases of a more serious nature where the evidence did not clearly show unintentional violation but the circumstances justified some leniency were settled by compromise, prosecutions being instituted and pressed only in cases of willful and flagrant violation.

At the close of the fiscal year 1916 there were pending 397 cases against registered and 201 cases against unregistered persons in which no action had been taken up to that time. The Supreme Court on June 12, 1916, handed down a decision in the case of United States *v.* Jin Fuey Moy, arising under section 8 of the act, in which it was held that the charge of unlawful possession of any of the proscribed drugs denounced in said section did not apply to persons not registered under section 1, but only to those classes specified in said section.

This decision, unfortunately, makes more difficult the enforcement of this law in such manner as to produce the most beneficial results, and also handicaps the efforts of the department for a suppression of the traffic in drugs by persons not eligible for registration. It also emphasizes the urgent need of a thorough revision of this act to effectuate the object of Congress for the suppression of the drug evil in this country.

Before this decision was rendered a large number of persons had been tried, convicted, and sentenced to pay fines or serve terms of imprisonment, or both, for violation of section 8 because of unlawful possession of the proscribed drugs, and it was necessary to take immediate steps for their relief, and in all these cases pending at the time of the decision the persons have since been released from prison; but as there was no authority of law nor money available for refundment of the fines paid, it will be necessary for Congress to make the necessary appropriation for this action to be taken.

This situation renders imperative legislation to amend and strengthen this law, if the welfare of the country and of those afflicted by the drug evil is to be protected and justice given those who have heretofore been convicted and paid fines for a violation of the law which the Supreme Court decided they had not violated.

Therefore it is again recommended that this act be amended or revised to provide—

First. A tax on the drugs, with provision for original stamped packages, limiting the dealing in and dispensing of and from such packages to those registered under the law, and making the absence of the stamp from any package evidence of nonpayment of the tax and violation of the law, except packages put up upon prescriptions issued for medical purposes by registered practitioners, and also to make the possession of an original stamped package by any person not registered evidence of failure to pay special tax and of violation of the law.

Second. That the registration be limited under the act to persons lawfully engaged in selling, dispensing, administering, or prescribing the drugs, and that the writing of prescriptions, keeping of records, and altering or forging of same be more fully covered by the statute with adequate provision for punishment of offenses denounced.

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Third. That all the general provisions of the internal-revenue statutes relating to seizures, forfeitures, etc., be made applicable to the drugs taxed and the persons upon whom special taxes are imposed.

It is recommended that Congress appropriate the necessary amount for repayment of fines imposed by the courts upon persons convicted of unlawful possession under section 8.

It is further urged that Congress provide for the treatment by the Government, through some designated agency, of persons addicted to the use of drugs, where such treatment is necessary and the person afflicted desires this aid.

Income tax.

For the fiscal year ended June 30, 1916, the total receipts from the personal income tax were $67,943,594.63, an increase of $26,897,432.54 over the preceding year. Of this increase $1,878,777.84 represents the amount assessed upon reports of revenue agents. The increase is more than 65 per cent over the collections of the previous year.

The total receipts from the corporation income tax for the fiscal year ended June 30, 1916, excluding $20,937.10 collected under the act of July 18, 1914, as income tax on railroads in Alaska (38 Stat., 517), were $56,972,720.88, an increase of $17,828,189.17. The amount of additional taxes assessed against corporations on the basis of revenue agents' reports was $5,808,393.65. The total collections represent an increase of more than 45 per cent over the previous year.

The total receipts of income tax for the fiscal year ended June 30, 1916, exclusive of the income tax on railroads in Alaska, were $124,916,315.51.

The increases in the tax were general throughout the United States and indicate that the unprecedented prosperity of the country is general and not local.

Since the incidence of the special excise tax on corporations and the income tax the greatest amount collected from corporations in any one year prior to the fiscal year ended June 30, 1916, was $43,127,739.89. The collections for the fiscal year just closed were $13,844,980.99 more, or nearly 32 per cent.

These figures indicate a period of unparalleled prosperity, because it will be remembered that while the net earnings of corporations have increased so tremendously at the same time the eager demand for labor and wide scope of employment have resulted in numerous increases in wages, which necessarily increased the cost of operations.

The Bureau of Internal Revenue is constantly striving to increase its efficiency in the collection of this tax, and the results of the past year would indicate that its efforts are meeting with a considerable degree of success.

The immediate need of the Internal-Revenue Service is an increased clerical force in the bureau to enable it to cope with the constantly increasing amount of work. In the corporation division the work of auditing is much in arrears, and unless relief is afforded in an adequate measure the situation can not but become more complicated from year to year. Comment is hereinafter made upon the effect this delay in auditing returns has upon the patience of the taxpayer.

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The amount of correspondence growing out of the audit of returns and the reports of investigations made by agents and the number of hearings held by the Commissioner of Internal Revenue to consider and pass upon difficult and intricate accounting and legal questions arising in connection with the administration of the income-tax law are such as to tax the present capacity of the bureau, and the request for additional clerical assistance is especially called to your attention.

In the report for the fiscal year ended June 30, 1915, it was stated that—

> Many inaccurate returns are made, some deliberately and some ignorantly, and there are, without doubt, wholesale evasions of the law throughout the country. The remedy for this is to clarify and strengthen the law where needed and to provide a larger and more effective field force for the investigation and checking up of the income-tax returns and for the discovery of those who are liable for the tax and have failed to make returns.

In the new revenue law enacted under date of 1916, many changes were made in the income-tax law which surely will result in a better understanding and better working of the law, and it is confidently believed that they will result in a closer collection of the amount of tax due and greatly lessen controversies with taxpayers.

A provision for a larger field force has also been made, and this addition to the force and the increased efficiency of the force already employed will not only result in the discovery of much tax not included in the returns but will also result in more correct returns being made by those corporations and individuals who have been visited by an internal-revenue agent, inspector, or deputy collector.

The statement made in the annual report referred to above that it was certain that the Government was losing through inaccurate returns and evasions of the law a sum many times greater than the cost of the field force to investigate and check up the returns and bring to account those who are failing to make returns as required by law has been verified by the results of the investigations of the past year, during which $7,683,275.70 was added to the tax through the investigations of the revenue agents' force. This is important, but it is believed that the amount of tax recovered represents only a part of the good derived from the services of this field force, because, as stated above, every examination made results in a better return the following year.

While the field force has increased in efficiency, the work of investigation is far in arrears of the needs, and until an adequate force is provided which will enable the Commissioner of Internal Revenue to audit and investigate each return of annual net income within a reasonable time after such return has been rendered to the Government, it will not be considered that this phase of the collection of the income tax will have been placed upon a proper basis.

During the fiscal year ended June 30, 1916, 93,067 transcript cards, representing 20,995 corporations (each transcript card represents the return for one year), were examined, the investigations resulting in the assessment of $5,808,393.65 additional tax. The number of transcript cards remaining in the hands of agents at the close of the fiscal year was 60,195. About 30,000 more transcript cards will be added to these by the time the audit of the 1914 returns is completed.

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The Commissioner of Internal Revenue estimates that the above, with the additional cases growing out of the audit of the 1915 corporation returns, will furnish employment for the whole of the present income-tax field force for a period of two years and six months, even if the additional force provided for should be sufficient to make the required investigations of individual returns.

During the fiscal year ended June 30, 1916, 14,406 personal transcript cards were reported on by the field force, and 28,332 transcript cards remained in the hands of such force awaiting examination. It is estimated that to this number will be added 14,760 transcripts from the unaudited returns for the calendar year 1914.

The lack of an adequate field force to investigate all cases which the annual office audit indicates should be examined results in the examinations being confined in some measure to the larger corporations and those individuals known or believed to be possessed of great wealth. But other returns should be verified also, and the lack of a proper system of information at the source makes such verification imperative if evasions are to be properly discouraged. The percentage of cost of these investigations as compared with the results in actual taxes recovered is large if this element only is considered, but the natural increase in the tax resulting from better returns after visits from internal-revenue officers is probably greater than the taxes assessed upon the reports of revenue agents. The absolute certainty that taxes evaded in one year will surely be discovered in a later year and must then be paid with penalties incurred will be one of the strongest safeguards of the tax.

Considerable complaint has been received by the Commissioner of Internal Revenue that agents are at this late date making investigations of returns for all years since 1909, the complaint being that the lapse of so many years with the consequent changes in officers of corporations makes the verification of the earlier years inconvenient, uncertain, and annoying and in numerous instances throws the burden of any additional taxes assessed by reason of such examination upon an entirely different set of stockholders. The cure for this is, of course, an office and field force sufficient to make annual audits and examinations within the year subsequent to the filing of the returns.

In the cases of individuals the delay in making investigations will undoubtedly result in further complications in cases of the death of taxpayers and the settlement of their affairs and distribution of their property prior to the visit of the examining officer.

United States cotton futures act.

The execution of the act of August 18, 1914, called the "cotton futures act," has been carried on as usual, notwithstanding the decision by Judge Hough, of the Southern District of New York, that the act was unconstitutional because it originated in the Senate (Hubbard *v.* Lowe, collector). The act making appropriations for the Department of Agriculture for the fiscal year ending June 30, 1917 (act of Aug. 11, 1916), contains a similar measure which was introduced in the House of Representatives after the adverse decision referred to. The case in the Supreme Court was dismissed.

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Emergency revenue act.

The emergency revenue act of October 22, 1914, which was to have expired December 31, 1914, was extended by a joint resolution approved December 17, 1915, and continued in full force and effect until and including December 31, 1916.

Repeal of the emergency revenue act of October 22, 1914.

The act to increase the revenue and for other purposes, approved September 8, 1916, effective September 9, 1916, repeals the emergency revenue act of October 22, 1914, and joint resolution of December 17, 1915, except sections 3 and 4 (special taxes), which remain in force until January 1, 1917. It amends the income-tax law by doubling the normal tax and making reclassification of rates for additional tax, and modifying some of the administrative measures, without disturbing the fundamental features of the previous law. It levies an estate tax, or tax on the transfer of net estates of persons dying after September 8, 1916, and a munition manufacturer's tax. Certain of the special taxes provided in the emergency revenue act of October 22, 1914, are reenacted. A special excise tax measured by the fair value of the capital stock is imposed on corporations for doing business.

Work of revenue agents.

During the last three years gigantic frauds against the revenue and evasions or omissions of tax have been uncovered, and evaded taxes approximating $50,000,000 have been discovered. Of this amount $22,509,576.47 was assessed, representing approximately $2,700,000 more than was expended during the three years for the operation of the Internal-Revenue Service. The unpaid taxes reported for assessment and collection were distributed as follows:

Corporation taxes	$11,326,125.82
Individual income taxes	5,006,696.92
Offers in compromise	984,791.41
Distilled spirits, tobacco, and miscellaneous taxes	4,241,555.45
Collections on account of oleomargarine frauds	950,406.87
Total	22,509,576.47

One extensive whisky conspiracy operating for many years in more than a dozen States was discovered and 11 conspirators have been convicted and are serving prison sentences.

In one oleomargarine conspiracy 34 offenders in a single city were convicted or plead guilty and sentenced to terms of imprisonment and to pay fines aggregating $138,000.

One investigation of tobacco frauds, extending over three States, resulted in the seizure of 236 factories of the offenders.

BUREAU OF ENGRAVING AND PRINTING.

There were engraved, printed, and delivered by the Bureau of Engraving and Printing 300,711,800 sheets of securities, postage stamps, etc., for the use of this and other departments, a decrease of 6,922,534 sheets as compared with the preceding year.

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The decrease in the output is principally due to the use by the Comptroller of the Currency in filling orders from banks for national-bank notes of emergency national-bank notes instead of having printings made by this bureau, and partly due to the unusually large number of national-bank and Federal reserve notes, of new revenue stamps, and of opium stamps and orders furnished in the preceding year.

The deliveries were 90,000,000 sheets of United States notes and certificates; 11,500 sheets of United States bonds; 6,331,274 sheets of national-bank notes; 796,000 sheets of Federal reserve bank currency; 6,522,000 sheets of Federal reserve notes; 83,767,833 sheets of internal-revenue stamps, 229,500 sheets of customs stamps; 109,653,858 sheets of United States postage stamps; 46,756 sheets of United States parcel-post stamps; 239,668 sheets of Philippine postage stamps; 597,550 sheets of silver certificates, bank notes, national-bank circulating notes, registered bonds, checks, documentary and internal-revenue stamps, and postal cards for the Philippine Islands; and 2,515,861 sheets of checks, drafts, and miscellaneous. In addition to these sheets delivered, miscellaneous work was executed to the value of $82,093.61. The face value of all classes of securities, internal-revenue stamps, postage stamps, etc., furnished by this bureau amounted to $2,997,382,581.04.

Compared by classes with the work executed in the previous fiscal year, there was an increase of 26.54 per cent in United States notes, certificates, and bonds; and 0.66 per cent in United States postage stamps; and a decrease of 62.11 per cent in national-bank and Federal reserve notes; 4.86 per cent in internal-revenue stamps; 11.97 per cent in customs stamps; and 1.62 per cent in checks, drafts, and miscellaneous.

Appropriations made by Congress for the operation of the bureau amounted to $4,058,460, and the bureau was reimbursed for services and materials furnished the several executive departments and bureaus to the amount of $1,073,067.20, the aggregate available for the work during the year having been $5,131,527.20. The expenditures were $236,398.43 for salaries, of which $900 was for one employee detailed to another branch of the department and not reimbursed; $8,400 for custody of dies, rolls, and plates; $1,840,096.56 for compensation of employees, of which $2,500 was for one employee detailed to another branch of the department and not reimbursed; $1,944,668.80 for wages of plate printers and assistants; and $1,036,484.93 for materials and miscellaneous expenses, making a total expenditure of $5,066,048.72, and leaving unexpended $65,478.48.

CUSTOMS.

While there was a decrease in the number of entries of merchandise taken during this fiscal year of approximately 129,000 from the number of entries during the fiscal year 1915, there was an increase in all other customhouse transactions. The decrease in the number of entries was chiefly due to a change in practice under which a number of consignments arriving by rail at ports on the Canadian and Mexican borders may be consolidated in one entry instead of requiring a separate entry for each consignment. This change was made for the mutual benefit of importers and of the customs officers, substituting as it does one document for the many theretofore required.

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The aggregate receipts from customs for the fiscal year 1916 amounted to $213,185,845.63, an increase of $3,399,173.42 over the aggregate receipts for the preceding fiscal year. The value of imports for the fiscal year amounted to $2,197,883,510, an increase of approximately $484,000,000 over the preceding fiscal year, while the value of the exports increased from $2,768,589,340 in 1915 to $4,333,658,865 in 1916. The amount of drawback paid upon the exportation of goods in whole or in part from imported dutiable materials amounted to $15,370,945, as against $7,403,686 during the fiscal year 1915, an increase of over 100 per cent. These increases are concurrent with the widespread increase in industrial activities and the accompanying prosperity of the country during the past year, the increase in the amount of drawback paid being proportionate to the increase in our foreign exports and the increase in the value of the imports being largely due to the increased importation of raw materials for manufacture in the export trade.

While the continuation of the European war has decreased the activities of the Customs Service in some lines, as compared with conditions prior to the war, because of the falling off in dutiable imports from the countries engaged in the war, it has increased the activities and responsibilities of that service in a number of other ways. While the amounts collected decreased, the volume of imports and exports increased. Much time and attention has been devoted to the maintenance of the neutrality of the United States. To this end customs officers have been charged with the duty, under the direction of the Treasury Department, of preventing any belligerent from using our ports as a base for hostile operations; of preventing the equipment or outfitting of vessels in our ports for hostile purposes; of preventing the shipment of goods under false manifests; and the supervision of the vessels interned in our ports.

Since the beginning of the war the following vessels of war have arrived in American ports and have been interned: *Prinz Eitel Friedrich*, cruiser, and *Kronprinz Wilhelm*, cruiser, interned at Norfolk, Va.; *Geier*, gunboat, and *Locksun*, naval transport, interned at Honolulu; and submarine *K–D 3* interned at San Juan.

In addition, the following merchant vessels of German and Austrian nationality have remained in ports of the United States since the beginning of the war:

Name of port and vessel.	Nationality.	Name of port and vessel.	Nationality.
New York:		New York - Continued.	
Adamsturm	German.	Nassovia	German.
Allemania	Do.	Pennsylvania	Do.
Barbarossa	Do.	Pisa	Do.
Bohemia	Do.	Portonia	Do.
Clara Menig	Do.	President Grant	Do.
Dora	Austrian.	President Lincoln	Do.
Friedrich der Grosse	German.	Princesse Irene	Do.
George Washington	Do.	Prince Eitel Friedrich	Do.
Grosser Kurfurst	Do.	Prinz Joachim	Do.
Hamburg	Do.	Vaterland	Do.
Harburg	Do.	Armenia	Do.
Himalaia	Austrian.		
Indria (sailing)	German.	**Boston:**	
Ida	Austrian.	Amerika	Do.
Kaiser Wilhelm II	German.	Cincinnati	Do.
Koenig Wilhelm II	Do.	Erny	Austrian.
Magdeburg	Do.	Kohn	German.
Maia	Do.	Kronprinzessin Cecilie	Do.
Matador (sailing)	Do.	Ockenfels	Do.
Martha Washington	Austrian.	Wittekind	Do.

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Name of port and vessel.	Nationality.
Philadelphia:	
Franconia	Austrian.
Prinz Oskar	German.
Rhaetia	Do.
Baltimore:	
Bulgaria	Do.
Neckar	Do.
Rhein	Do.
New London: Willehad	Do.
Newport News:	
Arcadia	Do.
Budapest	Austrian.
Charleston: Liebenfels	German.
Wilmington, N. C.:	
Kiel	Do.
Nicaria	Do.
Savannah: Hohenfelde	Do.
Pensacola:	
Lucia	Austrian.
Rudolf Blumberg	German.
Vogsen	Do.
Jacksonville: Freida Leonhardt	Do.
Tampa: Borneo	Austrian.
New Orleans:	
Andromeda	German.
Anna	Austrian.
Breslau	German.
New Orleans—Continued.	
Clara	Austrian.
Teresa	Do.
Galveston:	
Campania	Do.
Morawitz	Do.
San Francisco: Serapis	German.
Portland, Oreg.:	
Arboldus Vinnen (sailing)	Do.
Dalbek (sailing)	Do.
Kurt (sailing)	Do.
Seattle (Eagle Harbor):	
Saxonia	Do.
Steinbek	Do.
Honolulu:	
Gouverneur Jaechke	Do.
Hermes (gasoline)	Do.
Holsatia	Do.
Loong Moon	Do.
O. J. D. Ahlers	Do.
Pommern	Do.
Prinz Waldemar	Do.
Setos	Do.
Staatssekretar Kraetke	Do.
San Juan:	
Odenwald	Do.
President	Do.

Many reports and rumors relating to the violation of our neutrality by or through these vessels have been investigated, and while found in every case to have been without foundation of fact, a great deal of work has thus devolved upon the Customs Service.

The year was marked by the arrival at the port of Norfolk-Newport News of the steamship *Appam*, captured on the high seas and claimed to have been brought into port as a prize, and the arrival at the port of Baltimore of the *Deutschland*, the first submarine merchant vessel ever to enter any United States port.

The only violations of the neutrality statutes in any way successful consisted of the shipment of merchandise under false manifests, and these, it is gratifying to report, were detected and successfully prosecuted, with the result that attempts to evade the statutes in such matters have practically ceased.

Considerable embarrassment has been caused, both to importers and to the Customs Service, by delays in the receipt of invoices and bills of lading necessary to make entry of imported merchandise. The situation has been relieved as far as possible by the Customs Service by granting extensions of time within which entries of imported merchandise are required to be made by permitting importers to open and examine cases of merchandise on the piers in order to make up invoices therefor and by accepting entries without the production of bills of lading upon bonds being given for the subsequent production of such documents.

During the fiscal year the customs regulations were revised and issued as the Customs Regulations of 1915. This was the first revision of the regulations since 1908, and the work was performed by employees of the Customs Service and Customs Division detailed for that purpose, without any extra cost to the Government. This is mentioned for the reason that it has been customary in the past to have a special appropriation made by Congress for the purpose of revising these regulations. There was also prepared in the Customs Division an alphabetical index-digest of the decisions of the Treasury

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Department, the Board of United States General Appraisers, and the United States Court of Customs Appeals, rendered from 1908 to 1916, without any extra cost; and copy has also been prepared by employees of the naval office at New York for a revision, to January 1, 1916, of the index-digest known as "Compilation of Customs Laws and Digest of Decisions Thereunder." This was also done without any extra cost to the Government, through utilizing the services of employees whose work had been reduced to a minimum because of conditions resulting from the European war.

The method of tabulating statistics by mechanical means has been improved and advanced toward perfection. While the new system has not as yet greatly reduced the time required for the compilation of statistics, approximately double the volume of work has been handled within the same time as formerly.

During the year the Division of Special Agents was consolidated with the Division of Customs. This consolidation was accompanied by a direct saving in operating expense of $11,020 per annum, and nine months of actual experience under the consolidation has demonstrated that the work formerly done in both divisions can be performed efficiently in one division.

Committees of the efficiency board have visited the customs districts of Michigan, Rochester, southern California, San Francisco, Oregon, Washington, Eagle Pass, Laredo, Philadelphia, El Paso, and Arizona, and have made recommendations to the customs officers in those districts looking to the standardization of the processes used, with a view to increasing the efficiency of the service, with its resultant economy. These visits have had the effect in nearly every instance of increased efficiency and reduction in cost, not only without friction but with the greatest of good will and hearty cooperation between the committees, the customs officers, and the department.

Notwithstanding the increase in the activities of the Customs Service and the added work incident to the enforcement of the seamen's act, approved March 4, 1915, there was an actual reduction in the operating cost of the Customs Service in this fiscal year as compared with the preceding fiscal year of $117,176. This decrease in cost was due to the adoption of improved methods and the installation of the most modern devices for the performance of office work, and were it not for the considerable expenditures made during the fiscal year for such improved devices the operating cost would have been further reduced. These expenditures were, however, well made, as they will not require replacement for a number of years, and it is often the case that a few persons with proper equipment can efficiently conduct an office requiring double that number without such equipment.

During the fiscal year the total number of employees decreased from 7,079 to 6,881, while the average compensation per capita of such employees increased during the same period from $1,311 to $1,337, or $26 per capita.

In the operations looking to an increase in efficiency and a reduction in cost, the rule has been generally followed that efficient employees should not be dismissed solely because their services were rendered unnecessary by the adoption of improved methods. It is not the fault of these men that the customs organization has grown

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in a somewhat haphazard manner for over 100 years, resulting in the use of cumbersome methods, almost endless duplication of effort, unscientific organization, and obsolete equipment. Many of the men affected by the change in methods have families dependent upon them, and it is not considered humane to dismiss them summarily because of the introduction of new methods; but as vacancies occurred the force has been shifted, sometimes involving transfers from one district to another, in order that the new methods might be adopted and the operating force decreased as vacancies occurred through death, resignations, and removals for cause. These operations have been carried on with a view to an actual increase in the efficiency of the service, with the resultant economy, rather than with the narrow view of making a mere paper saving of money. Therefore, the opportunity has been taken to standardize so far as was possible the compensations paid in the various districts for the same service, having due regard to the differing conditions in the various districts. Great discrepancies have existed in the compensations paid for the same services in different parts of the country, in many instances the difference being fully 100 per cent. This has resulted in much dissatisfaction in those districts which considered themselves underpaid and therefore discriminated against, and efficiency was difficult to secure because of this deep feeling of dissatisfaction. Therefore, of the savings made a considerable amount was used in the upward standardization in the compensations, resulting in a net increase in the compensations paid per capita in the customs service of $26, the aggregate increases in compensation during the year amounting to approximately $179,000.

The system for the exchange of information relating to the value and classification of imported merchandise, through what is known as the "classification and valuation reports" (C. V. R.) has been greatly improved. This is done by having the various appraising officers forward daily to the appraiser at the port of New York data taken by them from invoices, price lists, and catalogues received, accompanied by samples, when practicable. These reports, when received in the appraiser's stores at New York are compared with each other and with the records and data at that port, and information is sent out to the various appraisers of changes in market prices and advances in values. Any transactions indicating fraudulent undervaluations are made the subject of special investigation. This has resulted in securing an almost perfect uniformity in the valuations and classifications of the same merchandise at the various ports and furnishes added means for the detection of fraudulent undervaluations.

The year was marked by the close, on December 1, 1915, of the Panama-Pacific International Exposition held at San Francisco. A branch customs office was established at the exposition grounds. The total customs receipts of the exposition were $171,777, and although an appropriation of $200,000 was made for the conduct of the Customs Service at this exposition, the expenditure therefrom amounted to only $118,397, the receipts thus being $53,380 more than the expenditures.

A reflex of the improvements made in the transaction of the routine business at customhouses will be found in a comparison of the cost

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to the Treasury Department's appropriation for printing and binding of the books, blanks, and stationery used by the Customs Service for the past five years, which is as follows:

Fiscal year ended June 30—	
1911	$81,183.83
1912	62,237.12
1913	49,530.98
1914	59,942.60
1915	44,131.58
1916	22,572.22

This great reduction in cost is due to the substitution of loose-leaf binders and simple records for the expensive and cumbersome ones formerly in use and the elimination of the numerous duplications of the same record formerly kept in customhouses.

At the last conference of customs officers held in October, 1915, the following recommendations were made for changes in the legislation relating to the operations of the Customs Service, in which the chief of the Division of Customs concurs:

(1) That section 3 of the act of February 13, 1911, be so amended as to permit bonds to be taken in a penal sum less than $50,000 for the issuance of special licenses and permits for the immediate unlading of vessels at night.

Such bonds are required by statute to be given in the sum of $50,000, whether the vessel be large or small and whether the cargo be of great or of little value. Actual experience has shown that the possibility of incurring a liability on these bonds is remote and it would be in the interest of commerce to permit the bonds to be taken in such an amount as would protect the interests of the Government, which would in almost every instance be less than $50,000.

(2) That section 2857, Revised Statutes, be repealed. This section in effect requires an importer to give a bond for the production of a triplicate invoice in the event that through a change of the destination of the merchandise a triplicate invoice is not received at the time of entry, although the importer may be possessed of the duplicate invoice. In such cases the triplicate invoice has been forwarded by the consul before whom it was certified to the port of destination named in the invoice. Under the regulations when such merchandise is entered at another port the triplicate invoice is secured from the collector of customs at the original port of destination. The statute requires the giving of unnecessary bonds by importers, and both they and the customs officers should be relieved from this red tape.

(3) That the act of June 10, 1880 (21 Stat., 173), relating to the forwarding of merchandise under entry for immediate transportation from the port of arrival to the port of destination, be so amended as to permit such entries to be taken at any time within one year after arrival, instead of limiting the time to 10 days after the unlading of the merchandise. The conference was unanimously of the opinion that there is no good reason for placing such a 10-day limit upon the time within which merchandise may be so forwarded, and in this connection it may be stated that the said act of June 10, 1880, is inapplicable to present conditions in many respects, and its thorough revision is recommended, both in the interests of commerce and for the purpose of eliminating unnecessarily cumbersome procedure at the customhouse.

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(4) That sections 3038, 3039, and 3048, Revised Statutes, be repealed. These statutes prescribe the manner of the payment of drawback upon the exportation of merchandise. Under the procedure provided a "debenture certificate" is first issued. That certificate may be surrendered at the end of 30 days and a check given by the customs officer in payment thereof. What purpose was ever served by the procedure is problematical. At the present time no purpose appears to be served other than requiring double work in the issuance of the debenture certificate and the subsequent issuance of a check for the same transaction.

Attention is again invited to the recommendations made in the annual report for the fiscal year 1915 for an amendment of sections 2899 and 2901 of the Revised Statutes and the repeal of sections 1790, 2693, 2777, 2782, and 2775. The adoption of these recommendations will simplify the procedure, eliminate red tape, and permit a further reduction in operating expenses.

In pursuance of a recommendation of the last conference of collectors of customs, each collector has submitted a narrative report of the conditions of the service in his district. The collector for the district of Washington recommends that the entire Customs Service should be reorganized to conform to the organization of the district of Washington, in which there is but one presidential officer, who is the direct representative of the department, and to whom all other officers are subordinate.

OFFICE OF THE SUPERVISING ARCHITECT.

The following statements show in general the projects authorized by Congress and in detail the financial operations of the Office of the Supervising Architect for the fiscal year ended June 30, 1916:

BUILDINGS.

New buildings completed (occupied or ready for occupancy) at the close of the fiscal year ended June 30, 1915	913	
Purchased completed (Galveston, Tex., appraisers' stores)	1	
Number of marine hospitals and quarantine stations	54	
New buildings completed during the fiscal year ended June 30, 1916	95	
Net total number of buildings (completed) under the control of the Treasury Department June 30, 1916		1,063
The above includes one building (Boonville, Mo.), which, though completed during the fiscal year 1915, was not so reported until too late to be included in the report for that year.		
Buildings placed under contract during the fiscal year ended June 30, 1916	88	
Buildings placed under contract prior to the commencement of the fiscal year 1916, and not completed June 30, 1916	21	
	109	
Awarded and completed during the fiscal year 1916 (Covington, Tenn.)	1	
Contracts for new buildings in force July 1, 1916		108
Total number of buildings completed and in course of erection June 30, 1916		1,171
Buildings authorized prior to act of Mar. 4, 1913, not under contract June 30, 1916	20	
Buildings authorized in act of Mar. 4 and June 23, 1913, not under contract June 30, 1916	248	
Building authorized in act of Mar. 4, 1915 (Forsyth, Ga.)	1	
Total		269
Total buildings completed, in course of erection, or authorized (not including extensions)		1,440

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EXTENSIONS.

Extensions completed (occupied or ready for occupancy) during the fiscal year ended June 30, 1916		6
Extensions placed under contract during the fiscal year ended June 30, 1916	5	
Extensions placed under contract prior to July 1, 1915, not completed June 30, 1916	3	
Contracts for extensions in force July 1, 1916		8
Extensions authorized prior to act of Mar. 4, 1913, not under contract June 30, 1916	4	
Extensions authorized in act of Mar. 4, 1913, not under contract June 30, 1916	16	
Extension authorized Aug. 1, 1914 (New Orleans, La., customhouse)	1	
Extensions not under contract		21

RECAPITULATION.

Contracts completed during the fiscal year ended June 30, 1916:	
New buildings	94
Extensions	7
Total	101
Contracts awarded during the fiscal year ended June 30, 1916:	
New buildings	88
Extensions	5
Total	93
Contracts awarded prior to July 1, 1915, not completed June 30, 1916:	
New buildings	21
Extensions	3
Total	24
Contracts in force July 1, 1916, regardless of date of award:	
New buildings	108
Extensions	8
Total	116

The above statement does not include the following:

Major miscellaneous contracts awarded from July 1, 1915, to June 30, 1916	19
Miscellaneous projects placed under contract during the fiscal year 1916, all of which required the preparation of specifications, and in many instances drawings, and which involved in some instances contract liabilities as high as $20,000, approximately	1,553

Statement of appropriations made during fiscal year ended June 30, 1916, and summary of acts carrying appropriations for the fiscal year 1916.

The further urgent deficiency act, approved February 28, 1916, carried appropriations as follows:

For sites only	$100,000	
For sites and buildings	256,050	
For buildings only	3,047,500	
For extensions	125,000	
Total		$3,528,550
For repairs and preservation	$25,000	
For vaults and safes	10,000	
For operating force	100,000	
For operating supplies	35,000	
Total		$170,000
Grand total		3,698,550

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Summary of acts carrying appropriations for the fiscal year 1917.

The legislative act approved May 10, 1916, carried an appropriation for "Salaries, Office of Supervising Architect," in amount $221,800.

The sundry civil appropriation act, carrying appropriations for the fiscal year 1917, not having been approved until after the close of the fiscal year 1916, or July 1, 1916, does not appear in this report. It will appear in the annual report for the fiscal year ending June 30, 1917.

Statement of appropriations for public buildings, July 1, 1915, to June 30, 1916.

EXPENDITURES DURING THE FISCAL YEAR.

For statutory roll	$213,949.48
For sites and additional land	858,759.00
For construction of new buildings	7,507,497.65
For extensions to buildings	743,022.44
For special repairs to buildings	97,165.53
For rent of buildings	38,593.35
For repairs and preservation	677,220.08
For mechanical equipment	410,467.80
For vaults and safes	107,346.65
For operating supplies	1,651,020.77
For general expenses	550,659.58
For furniture and repairs of same	833,933.04
For operating force	2,849,802.69
For lands and other property	16.20
For architectural competitions	25,633.94
Total	16,565,088.20

CONTRACT LIABILITIES EXISTING AT CLOSE OF BUSINESS JUNE 30, 1916.

On account of statutory roll	.....
On account of sites and additional land	$828,620.16
On account of construction of new buildings	11,888,819.11
On account of extensions to buildings	638,865.79
On account of special repairs to buildings	90,193.05
On account of rent of buildings	34,087.75
On account of repairs and preservation	258,137.23
On account of mechanical equipment	169,200.35
On account of vaults and safes	40,721.63
On account of operating supplies	159,974.15
On account of general expenses	45,924.32
On account of furniture and repairs of same	378,265.64
On account of operating force	[1] $200,254.97
On account of architectural competitions	37,168.27
Total	14,770,232.42
Less authorized contract liabilities in excess of amounts appropriated under the special appropriations	3,513,434.86
	11,256,797.56

UNENCUMBERED BALANCES AT CLOSE OF BUSINESS JUNE 30, 1916.

For statutory roll:	
1915	$2,560.56
1916	6,893.01
For sites and additional land only	2,462,836.26
For construction of new buildings	6,300,598.55
For extensions to buildings	1,994,729.21

[1] This figure exceeds the amount appropriated by aproximately $25,000. Amount to cover same carried in sundry civil bill. Pending June 30, 1916.

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For special repairs to buildings	$71,428.16
For rent of buildings	121,217.50
For repairs and preservation:	
1915	4,658.45
1916	3,023.52
For mechanical equipment:	
1915	3,489.76
1916	4,265.59
For vaults and safes:	
1915	354.14
1916	487.48
For operating supplies:	
1915	33,527.79
1916	8,672.89
For general expenses:	
1915	411.73
1916	2,536.24
For furniture and repairs of same:	
1915	1,711.51
1916	2,415.67
For lands and other property:	
1915	300.00
1916	283.80
For operating force:	
1915	26,344.71
1916. (Deficiency. See note.)	.....
For architectural competitions:	
1915	20,688.01
1915 and 1916	3,147.73
Total	11,076,582.27

NOTE.—Deficiency on this appropriation approximates $25,000.

BALANCES OF APPROPRIATIONS SENT TO SURPLUS FUND JUNE 30, 1916.

On account of special appropriations	$391,404.66
On account of annual appropriations, to wit:	
Furniture and repairs of same for public buildings, 1914	61,814.07
General expenses of public buildings, 1914	9,787.05
Mechanical equipment for public buildings, 1914	3,936.97
Repairs and preservation of public buildings, 1914	4,021.44
Vaults and safes for public buildings, 1914	228.82
Operating force for public buildings, 1914	58,103.93
Operating supplies for public buildings, 1914	107,388.27
Lands and other property of the United States, 1914	286.39
Total	636,971.60

PUBLIC HEALTH SERVICE.

Operations of the Public Health Service during the fiscal year have been conducted through its several administrative divisions and are summarized by the Surgeon General as follows:

Division of Scientific Research.

Further expansion was shown in the work conducted under this division during the year. Every effort was made to increase the usefulness to the public generally of the field and laboratory studies of matters relating to health, which may be classified under the headings of diseases of man; rural sanitation, school hygiene, industrial sanitation, including occupational diseases; sanitary organization and administration; pollution of navigable streams and coastal waters;

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disposal of sewage; treatment of industrial wastes; and viruses, serums, toxins, and analogous products.

Diseases of man.—Among the diseases studied during the year special attention has been given to diphtheria, filariasis, hookworm disease, leprosy, malaria, miner's consumption, pellagra, rabies, scarlet fever, spotted fever, trachoma, trichinosis, tuberculosis, typhoid fever, and typhus fever.

Filariasis.—The study of filariasis has been conducted in the Southern States, and in infected communities the extent of the infection has been brought to the attention of the authorities, together with measures for its prevention.

Malaria.—Investigations of malaria have been conducted during the year throughout the South and in some northern States along the following lines: Surveys, demonstration work, educational measures, research in field and laboratory, special studies as to impounded water, hemoglobinuria, and rice culture in relation to the disease.

Important discoveries have been made in regard to the infectibility, incubation period, transmission of infection, blood diet, hibernation, length of flight, and breeding places of Anopheles mosquitoes of various species, showing among other things that the *A. quadrimaculatus* is the species most concerned in the transmission of malaria in the Southern States. Information secured has been used in advising local authorities in the localities surveyed with regard to the eradication and prevention of the disease and suppression of mosquito-breeding places.

Since 1912, 20,462 persons have been examined, of which 2,561, or 12.51 per cent, were found to harbor the parasite of malaria. In one city where demonstration work has been carried out the incidence of disease has been reduced in two years from 13.75 per cent to 3.5 per cent.

Pellagra.—During the year the service has studied the value of diet in the prevention of pellagra in Mississippi, South Carolina, and Georgia. Of 242 former pellagrins given a well-balanced diet but one had a recurrence of the disease, although there was a recurrence in 47 per cent of the 32 control cases. In an experimental study of the possibility of producing pellagra in the human subject by means of a faulty diet, the disease developed in 6 out of 11 volunteers.

A field study was undertaken in 7 cotton-mill villages in Spartanburg, Oconee, and Chester Counties, S. C., to obtain data relating to family income, availability of food supply, seasonal variation in food supply, and the relation of these to pellagra incidence. Field studies of pellagra prevalence were also made in Alabama, Arkansas, Louisiana, North Carolina, and Texas.

In addition, clinical and laboratory investigations of pellagra have been conducted at the service pellagra hospital at Spartanburg, S. C., consisting of dietary treatment of 151 patients and 40 outpatients at the hospital and of a few other patients at their homes, studies of the composition of food in pellagrous and nonpellagrous families, studies of metabolism in pellagra, including the chemical composition of the blood, urine, and gastric contents of patients, the treatment of patients with vitamine preparations, and feeding experiments of wheat and corn products to animals.

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Trachoma.—Five small trachoma hospitals have been in operation during the past year in the States of Kentucky, Virginia, and West Virginia, the work being done in cooperation with State and local authorities. A total of 7,970 persons were treated during the year, of which 1,880 were admitted to hospital. Preventive measures have been carried out with the hospitals as centers. Field clinics have been found of advantage both in giving instruction to physicians as to operating on trachoma cases and in educating the public in the prevention of the disease and in general health matters.

A survey of school children in Arkansas found trachoma present in 1.1 per cent of the boys and 1 per cent of the girls in rural schools, and in 0.2 per cent of the boys and 0.3 per cent of the girls in city schools.

Industrial sanitation.—With the transfer of industrial sanitation headquarters to Pittsburgh, Pa., in July, 1915, increased emphasis was placed upon this subject by the service.

A study was made of the effects of gas-heated appliances upon the air of workshops in the garment industry of New York City. Studies of the hygienic aspects of illumination in relation to occupation and to vision of workers were continued, photometric surveys being made of the Treasury Building, the Bureau of Engraving and Printing, and the Government Printing Office in Washington, nearly 1,000 records of visual examinations being obtained.

The service has cooperated with the Industrial Commission of Wisconsin in making an investigation of the health conditions surrounding the employment of women in that State.

A study is being made in Pittsburgh of the effects of occupation in the steel industry upon the health of workers, including physical examinations, the collection of social and economic data, a survey of places of employment, and studies of certain processes and operations. In addition, the service has completed an investigation, in cooperation with the Bureau of Mines, of the existing hygienic conditions in places of employment in the metallurgical plants of the Pittsburgh district. Also in cooperation with the Bureau of Mines, miner's consumption in southwestern Missouri has been intensively studied and a similar investigation in the Butte, Mont., district commenced.

The service is cooperating with the Massachusetts Child Labor Committee and the Massachusetts State Board of Labor and Industries in a study of the influence of occupation on persons during adolescence. During the last fiscal year an inspection was made of 679 male minors employed in the cotton industry of the State. Studies of health insurance, begun with the Commission on Industrial Relations, have been continued independently.

Facilities for carrying on industrial sanitation investigations should be increased.

Sanitation of convict camps.—Cooperative studies of convict camps were continued during the year. A demonstration camp in Fulton County, Ga., has been supervised from a public health standpoint.

Public health administration.—In response to an increasing number of requests for surveys of public health organization and administration, such studies were made in the States of Florida, Nebraska, Nevada, and North Dakota, and in the cities of Richmond, Ind., Youngstown, Ohio, Columbia, S. C., and Winston-Salem, N. C.

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Detailed reports and specific recommendations were published or submitted to the authorities.

School hygiene.—The scope of the school hygiene investigations has been broadened to include researches in mental hygiene. Field investigations have been conducted in New Castle County, Del., in Frederick County, Md., and throughout the State of Arkansas. Ninety-one schools were surveyed. The physical status of over 5,000 and the mental status of over 22,000 school children was determined. The work has been confined largely to rural districts, where improved school sanitation has been found to be less general than in cities.

Rural sanitation.—Because of a special appropriation of $25,000, available during the past spring, the service has been able to enlarge its intensive investigations to promote the advancement of rural sanitation. The response met by the officers assigned to this work has been most cordial, and the improvement in sanitation in the communities surveyed and in other communities where the methods employed by the service have been partially adopted has been marked. It is evident that increased appropriations are necessary to enable the service to extend this highly important work for the improvement of rural health.

Rural sanitation studies were completed during the year in Anne Arundel County, Md., Walker County, Ala., Orange County, N. C., Wilson County, Kans., and Dallas County, Iowa. In addition to the 20,000 homes in these counties reported visited during the fiscal year 1915, 20,000 more visits or revisits were made in the same counties in the last fiscal year. Work has been commenced in four other counties—Tuscaloosa, Ala., Floyd, Ga., Greenville, S. C., and Obion, Tenn. Up to the end of the fiscal year over 20,000 residences had been visited, data collected, and advice offered when requested in regard to sanitary defects which had been observed.

Leprosy investigation station.—Studies of leprosy have been continued during the year in Hawaii, six papers reporting technical studies in the disease having been published and three others prepared for publication.

Hygienic Laboratory.—The technical studies of the service are conducted for the most part at the Hygienic Laboratory, which also gives assistance to investigation in the field. During the past year these technical studies were of an increasingly varied nature, relating to pellagra, Rocky Mountain spotted fever, scarlet fever, diphtheria, hookworm disease, trichinosis, nematodes in fishes, zoological nomenclature, vitamines, standardization and toxicity of drugs, effects of cocaine substitutes, toxicity of certain metals, determination of nitrates in sewage filter effluents, diffusion of dissolved oxygen through water, the fauna of sludge, disinfectants and the theory of disinfection, muscicides and other fly-destroying agencies, factors concerned in rate of heat loss from the human body, determination of minute quantities of antimony, and measurement of dilute hydrocyanic-acid gas in air.

Compilations have been made of laws and regulations relating to poisons and habit-forming drugs, work has been done relating to the next revision of the United States Pharmacopœia and the National Formulary, material for the digest of comments has been prepared, and assistance has been given to the council on pharmacy and chem-

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istry of the American Medical Association. Cooperation with other branches of the Government has been continuous.

The past fiscal year was marked by a great increase in the number of specimens submitted to the laboratory for examination, the total number being 3,365. The laboratory has sent to State health authorities 1,738 complete treatments for rabies. Other routine work of a chemical and bacteriological nature has been carried out, as in the past.

Viruses, serums, etc.—In connection with the enforcement of the law governing the sale of viruses, serums, etc., 55 inspections of establishments have been made and 5,187 samples of products examined. Forty-two establishments (27 American and 15 foreign) held licenses at the end of the fiscal year. Studies have been commenced looking to securing an efficient potency standard for anti-typhoid vaccine.

Pollution of streams.—The exhaustive survey of pollution of the Ohio River and its watershed was continued during the year. In addition, surveys of stream pollution were conducted at certain Atlantic coast watersheds and the water supplies of Fort Thomas and Lexington, Ky., and Florence, Ala., were studied.

Coastal waters.—The field investigations of the pollution of coastal waters were extended during the year to include the important shellfish areas of Delaware Bay and its tributaries, lower New York, Raritan, and Jamaica Bays, New Haven Harbor and vicinity, and the Atlantic coast from the Virginia capes to New York, as well as a reexamination of certain areas in Chesapeake Bay and tributaries. These investigations consisted in the examination of large numbers of samples of shellfish and water, float and current studies, and sanitary surveys of adjacent areas.

Laboratory work is being conducted with regard to the self and artificial purification of oysters and the disappearance rate in sea water and shellfish of *B. typhosus* and *B. coli*.

Sewage disposal.—As in the past, a number of sewage experimental plants have been operated to determine improved methods of sewage disposal in small communities and aboard trains and steamships. Certain surveys of privy conditions, including sanitary surveys of Hopewell, Va., and Jackson, Ky., were made during the year.

Industrial wastes.—Studies of industrial wastes, including tannery wastes, strawboard wastes, cannery wastes, and creamery wastes are being continued.

Educational lectures, etc.—On request of sanitary and civic associations, hundreds of educational lectures have been delivered in practically all sections of the country.

In addition to the scientific bulletins reporting the laboratory and field investigations, a number of popular publications have been prepared for use in the field and given as wide a circulation as practicable.

Division of Foreign and Insular Quarantine and Immigration.

During the fiscal year the operations of the Public Health Service at United States quarantine stations included as in former years the enforcement of the quarantine laws and regulations providing measures to be taken for the prevention of the introduction of the various quarantinable diseases into the United States.

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This service function was augmented during the year by the opening of the quarantine station at Galveston, Tex. Congress appropriated $150,000 for the purpose of purchasing the Boston quarantine station and equipment on Gallop's Island, and at the present time the service controls and administers all quarantine stations of importance on the mainland of the United States with the exception of Baltimore and New York. The city of Baltimore has signified its desire to transfer the quarantine station at that port from the city to the Federal Government. The New York quarantine station is now administered by an officer of the Public Health Service on leave, being appointed for such purpose by the Governor of New York.

The National Government owns and operates 56 quarantine stations on the mainland of the United States, and in the Philippines, Hawaiian Islands, and Porto Rico 26 stations are administered by medical officers of the Public Health Service. In addition, there are stationed at foreign ports 17 medical officers for the purpose of further supervising the enforcement of the quarantine regulations applicable to vessels at ports of departure when bound for ports in this country. These officers also exercise an advisory capacity in the examination of intending immigrants, and thereby often prevent needless expense to immigrants whose condition would operate to their mandatory exclusion from this country.

At the mainland quarantine stations of the United States there were inspected 12,120 vessels and 853,073 passengers and crews. For the destruction of rats and mosquitoes in the treatment of vessels infected with disease, there were fumigated 1,794 vessels.

Several unusual conditions operated as an added menace to the sanitary condition of this country and increased the duties and responsibilities of the officers on duty at the quarantine stations. An alarming increase of typhus fever occurred in northern Mexico, in Mexican cities located on the border of the United States. Conditions in the Republic of Mexico further added to the difficulties of sanitation in that country, and prevented the securing of information as to actual sanitary conditions.

In addition to the typhus epidemic a very considerable spread of dengue occurred, and in the latter part of the year yellow fever was reported from various communities having direct communication with United States ports. The utmost precautions were therefore observed to prevent the introduction of yellow fever into the United States. Means were found, however, to facilitate shipping from some of these ports by the requirement of loading at sea and nonintercourse between vessels and the shore, medical officers of the Public Health Service being stationed at the various Mexican ports on the Gulf for the purpose of supervising precautionary measures. Two cases of yellow fever were discovered at New Orleans quarantine station on a vessel from Progreso, the vessel and personnel being given proper treatment for preventing the introduction of the disease into New Orleans.

Yellow fever was reported as epidemic in Porto Rico by medical officers of the Army, but the chief quarantine officer of Porto Rico considered the disease dengue, and his diagnosis was corroborated by a special commission of experts.

A very considerable epidemic of smallpox occurred in Porto Rico during the year. An epidemic of cholera has spread throughout all

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countries of the Orient, and its ravages were severe in Germany, Austria, and Russia. Some cases were reported from Italy and Greece.

Plague has occurred in numerous ports having commercial relations with the United States, prevailing practically at all ports of the Orient, with the exception of the Philippine Islands; in various parts of South America; in Cuba, the Azores, and in various Mediterranean ports. The widespread prevalence of this infection has necessitated the strictest supervision of incoming vessels. As a result of fumigation plague infection was found to exist on a vessel that had been six months out of a port of India, by way of European ports.

The problem of preventing the overland spread of typhus fever from Mexico to the United States has been a very difficult one, as, on account of the long line of border, illegal entry is of rather frequent occurrence, and the restrictions imposed at the port of entry have a tendency to encourage clandestine crossing. Main reliance has been placed on the treatment of incoming travelers and their personal effects for the purpose of destroying all vermin.

It is very important, however, that the quarantine facilities on the border shall be considerably enlarged, as they are at present inadequate. Plans with this object in view have already been partially carried into effect, with a Public Health Service officer in charge of all quarantine activity on the Mexican border.

Considerable attention has been given to improved methods of destroying rats on vessels by the employment of hydrocyanic-acid gas. This agent, on account of its superior diffusive qualities, has been found to be more effective than sulphur fumes, which have been used for years past, and very much cheaper than the process of fumigation by carbon monoxide. The main advantage in the use of cyanide gas, however, has been the expediting of vessels passing through quarantine, the period of detention of a vessel when fumigated with cyanide gas being approximately two hours, as compared with 12 to 18 hours formerly required when sulphur was used. A very considerable amount of experimental work has been done by officers of the Public Health Service along the lines of cyanide-gas fumigation, and several publications have been issued containing the results of this work.

Medical inspection of immigrants.—During the fiscal year ended June 30, 1916, 478,527 immigrants were examined by medical officers of the service for the purpose of detecting such physical or mental defects as might operate to exclude them from the United States under the provisions of the immigration law.

The number of officers assigned to medical inspection has fluctuated during the year, but on an average 90 officers were engaged exclusively in this duty. The examination of immigrants, however, is performed to a greater or less degree by many officers stationed at marine hospitals and quarantine stations and by service representatives stationed at the American consulates at foreign ports.

Owing to the reduced number of incoming immigrants, it has been found possible to adopt more intensive methods for examining immigrants, with the result that there has been a material increase in the number of aliens discovered to be mentally defective. Mental examinations require specially trained officers and preferably those who can devote their time exclusively to this kind of work. The

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requirements of the service have been such as to prevent the detailing of the full number of officers desired for this purpose, but the policy has been to increase as far as possible the number of officers specially trained in the examination for determining mental defectives.

Division of Domestic Quarantine.

The usual operations for the prevention of the interstate spread of disease have been continued throughout the year.

Rocky Mountain spotted fever.—Rocky Mountain spotted fever, an infection transmitted through the bite of infected wood ticks, has been combated as heretofore and regulations have been prescribed which it is hoped will limit the disease to territory already infected.

Poliomyelitis (infantile paralysis).—At the close of the fiscal year an extensive outbreak of poliomyelitis developed in New York City and an extension of the disease to contiguous areas occurred. In an effort to limit this extension an inspection and notification system of all children under 16 years of age leaving New York City was established, the health authorities at the points of destination receiving immediate notification of the coming of all persons of this class. At the present writing this system is still in force.

Bubonic plague.—Plague-preventive operations have been continued at New Orleans, La., Seattle, Wash., and environs, San Francisco, Cal., and in other sections of the last-mentioned State. No human case of plague has developed in New Orleans since September 8, 1915, but the infection has by no means been eradicated among rodents, indicating that danger still exists and requiring the continuation of rat extermination, the rat proofing of docks, warehouses, and other buildings and such remaining measures as appear applicable. Among the ground squirrels of California plague infection still persists, the incidence of the infection for 1916 showing a material increase over that of the previous year, but being only one-tenth of that for 1913. Before definitely and permanently discontinuing the work in those counties where infected squirrels could not be found, intensive hunting operations on a large scale were conducted over a wide area, resulting in a yield of rodents three times as great as the number destroyed in 1915. At the termination of the fiscal year all plague-preventive measures in the city of San Francisco were transferred to the city government, no plague-infected rodent having been discovered for several years, and the expense of further operations will be borne by the municipal government.

Interstate quarantine regulations.—A revision of the interstate quarantine regulations was promulgated by the Secretary of the Treasury under date of January 15, 1916. The promulgation of the requirements as approved marks not only a most important step in the prevention of the interstate spread of disease, but materially raises the standard of cleanliness of common carriers, improves sanitary conditions, and protects the drinking water and food supplied to the traveling public.

Educational work.—The educational work of the Division of Domestic Quarantine has been considerably broadened during the year. Increased use is constantly being made of the stereopticon loan library, more than 20,000 slides having been loaned to health officers, social workers, and others since the date of the last annual

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report. Numerous requests are also received for motion-picture films on health topics, but compliance with these requests in a majority of cases has been impossible owing to lack of material. A noticeably increasing tendency on the part of the public press to publish articles relating to health subjects recently has been manifested, and this tendency, as heretofore, has been furthered by providing for distribution to the press timely articles relating to health matters. It is believed that this constitutes one of the most valuable methods for the prevention of disease. Other educational activities have been by means of exhibits conducted at the Panama-Pacific International Exposition, on the Government "safety first" train, and in other places. In cooperation with the Bureau of Education the educational, sanitary, and relief measures afforded the natives of Alaska have been continued as heretofore.

Division of Sanitary Reports and Statistics.

Prevalence of disease in the United States.—Pursuant to the responsibilities imposed by Congress in the act approved February 15, 1893, every effort has been made to keep currently informed of the prevalence and geographic distribution of the preventable diseases throughout the United States. Not only has advantage been taken of existing sources of information and the records available in health departments of States, cities, counties, and townships, but, in accordance with the established policy of the department, an attempt has been made to increase the available information through the education of health officers and practicing physicians to its importance. Continuous effort has been made to cause more widespread recognition of the fact that no health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring. Health departments are rapidly coming to realize that it is necessary that they have exact and current information of the prevalence of diseases if their efforts at control are to be at all effective. As a result the extent of the territory in which records of the current prevalence of disease are available is rapidly increasing. It is becoming recognized as a truth that efficient health administration and accurate information of the prevalence of disease go hand in hand and are inseparable.

The available data relating to the prevalence of disease have been currently published in the Public Health Reports for the information of health officials throughout the country.

During the latter part of the year poliomyelitis, or infantile paralysis, became epidemic in New York City and adjacent territory. Because of the great dread in which the disease is generally held and also that all possible measures might be taken to prevent its spread, it was especially important that the occurrence of cases should be promptly known. Officers of the Public Health Service and health officers throughout the country have kept the bureau informed by telegraph. The information thus obtained made it possible to watch the gradual extension of the disease and gave the confidence and assurance that accompany definite information.

A registration area for disease.—The conference of State and Territorial health authorities with the Public Health Service, held in Washington in May, 1916, adopted a formal resolution recommending

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the establishment of a registration area for disease—that is, that those States be designated in which the accuracy of reports of disease come up to a given standard. The establishment of such a registration area implies the more careful recording of data regarding the prevalence of disease and its more careful compilation and analysis, and would be a most important and progressive step. The responsibility for the compilation and analysis of the data from such an area would fall mainly upon the Public Health Service. While the work would be considerable, this would be more than compensated by the great value of the resulting information.

Public health laws and court decisions.—The current publication of public health laws, ordinances, and regulations of States and cities has been continued, and two more volumes have been added to the compilations of such enactments.

The decisions of the Federal and higher State courts on matters which pertain to public health have been published currently in the Public Health Reports. During the year a digest and compilation was issued of the decisions which had been published.

Many requests are received from State and city health authorities for copies of laws, ordinances, and regulations adapted to meet special conditions or for assistance in drafting such measures. These requests have been complied with.

The question of correlating and making public health legislation uniform, in so far as possible, is an important one, and especially so because of the large number of State legislative bodies and the innumerable local authorities having the power of enacting ordinances and regulations. Every effort has been made to accomplish this purpose and to give advice and render assistance in the drafting of laws and regulations, and, in so far as possible, cause the enactment of legislation which is consistent and uniform and reflects the most advanced knowledge.

Public Health Reports.—The Public Health Reports have been issued weekly and distributed to sanitarians and health officials. They have been used as the medium for keeping the health officials currently advised of the prevalence of communicable diseases throughout the United States, the nature of the sanitary laws and regulations being currently enacted, and the trend of public health administration and practices.

Educational pamphlets intended for general distribution have been issued as supplements to the Public Health Reports. The great demand for these supplements indicates their usefulness.

Division of Marine Hospitals and Relief.

During the fiscal year 1916, 68,398 patients received treatment as beneficiaries of the service, an increase of 12,616 over the preceding fiscal year. Of this number, 17,464 were treated in hospitals and 50,934 were treated as dispensary or out-patients. The hospital patients received a total of 475,439 days' treatment. During the year the service operated 22 marine hospitals, all of which are owned by the Government, and maintained 125 other relief stations where medical relief was furnished patients.

At the tuberculosis sanatorium of the service located at Fort Stanton, N. Mex., 346 patients were cared for during the year. Of these,

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109 were discharged, 40 died at the sanatorium, and 197 remained under treatment at the close of the year.

Aid was extended to other branches of the Government in the physical examination of 6,454 persons, of whom 883 were rejected. In addition, 28,054 merchant seamen were physically examined to determine their fitness for service on American vessels, of whom 3,208 were rejected, and 245 foreign seamen were examined, of whom 25 were rejected.

Division of Personnel and Accounts.

Commissioned and other officers.—The commissioned medical officers at the close of the fiscal year numbered 187, as follows: The Surgeon General, 1 assistant surgeon general at large, 13 senior surgeons, 72 surgeons, 37 passed assistant surgeons, and 63 assistant surgeons. The acting assistant surgeons numbered 250, in addition to 5 acting assistant surgeons appointed for duty in the physical examination of applicants for enlistment or reenlistment in the United States Coast Guard. Physicians are also employed for the medical relief of superintendents, keepers, and surfmen near life-saving stations, and at places where the services of medical officers of the Public Health Service are not available, to the number of 63, making a total of 505 medical officers. The total personnel of the service, including 50 pharmacists, 1,420 attendants, and 156 other employees, numbered 2,131.

Expenditures.—The appropriations for the ordinary maintenance of the Public Health Service were $2,002,106. The receipts from all sources, repayments for care of foreign seamen, etc., were $22,067.58. The expenditures, including outstanding liabilities, were $1,953,995.09, leaving an estimated balance of $70,178.49.

The appropriation for preventing the introduction and spread of epidemic diseases was $500,000. The repayments were $1,014.40. The expenditures, including outstanding liabilities, were $470,115.59, leaving an estimated balance of $30,898.81.

The appropriation for the maintenance of the quarantine service was $155,000. The amount of repayments was $3,279.71. The expenditures were $152,843.67, including outstanding liabilities, leaving an estimated balance of $5,436.04.

The appropriation for field investigation of public health matters was $200,000. The repayments were $46.85. The expenditures, including estimated outstanding liabilities, were $193,012.84, leaving an estimated balance of $7,034.01.

The appropriation for interstate quarantine service was $15,000. The expenditures were $14,998.53, including outstanding liabilities, leaving an estimated balance of $1.47.

The appropriation for special studies of pellagra was $40,000. The expenditures were $36,342.62, including outstanding liabilities, leaving an estimated balance of $3,657.38.

The appropriation for studies of rural sanitation was $25,000. The expenditures were $24,935.57, including outstanding liabilities, leaving an estimated balance of $64.43.

Miscellaneous Division.

Publications.—The fiscal year 1916 witnessed a still further increase in the quantity of literature of the Public Health Service distributed

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throughout the country. During the year there were issued 132 publications, dealing with many phases of public health and sanitation. The number of copies issued was approximately 2,241,225, exclusive of a very considerable quantity printed and sold by the Public Printer.

Because of the expansion of service activities, with the consequent increase in the demand for public health documents, the editions of service publications were soon exhausted, and it therefore became necessary in many instances to refer applicants to the Public Printer, from whom copies could be purchased.

Library.—During the year many valuable additions were made to the bureau library through the purchase and donation of works dealing with medicine, public health, and kindred subjects. The bureau was also kept currently advised of the advance in scientific and public health subjects by subscription to 42 journals.

Recommendations.

Pellagra prevention.—The remarkable results following scientific studies of public health matters during the year show the wisdom of fostering such endeavor. It is safe to say that the results obtained from one line of study alone, i. e., pellagra, have been of many times greater value than the entire appropriations for studies of public health matters. There is need of extending these studies of pellagra to demonstrate not only the public health but the economic inportance of the disease in communities badly affected.

Rural sanitation.—Another important recent undertaking of the Public Health Service has been the studies of sanitary conditions generally in rural counties. The marked betterment which has followed the completion of these studies in all the counties where they have been undertaken is most gratifying. The health of the rural population is a national asset of the greatest value, and adequate provision should be made for extending this work to at least one or two representative counties in every State of the Union. In order to advance sanitation it is essential that local health organization shall be developed. It is by studies of this character that the Government can best promote this object and contribute to the control of typhoid fever, malaria, and other diseases of high incidence in rural communities.

Industrial hygiene.—For a number of years studies of sanitary conditions in certain industries have been carried out by the Public Health Service. Such investigations as have been recently conducted in New York, Massachusetts, Ohio, Pennsylvania, and Wisconsin have been generally recognized as a factor in determining sanitary defects in the industries studied, and suggesting remedial measures for their correction here and elsewhere. The system of carrying out these studies in cooperation with the State and local authorities should be continued. There are many problems connected with industrial sanitation which await solution, and being of national importance should be investigated by the Federal Government. Facilities available for this work should therefore be increased in order to take up new studies for which plans have already been formed.

Biologic products.—A small appropriation was made available during the past year for the control of the manufacture and sale of

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biologic products. This appropriation, however, is not sufficient to maintain a constant and efficient supervision over this class of products. Such supervision is necessary in order to insure their safety and protect the health of the many users of these preparations.

National quarantine.—In the annual report of the Secretary of the Treasury for the fiscal year 1915 attention was drawn to the importance of making complete the national quarantine system by the acquisition of the few remaining quarantine stations under State or local control. During the past year Congress has appropriated $150,000 for the purchase of the Boston station, which has been conducted under a lease from the city of Boston since June 1, 1915. This leaves but two important stations that are not under Federal control, i. e., those located at New York and at Baltimore. The city council of Baltimore has recently signified its desire to transfer the quarantine function at that port to the National Government, and at its last session the Legislature of the State of New York passed a resolution authorizing the appointment by the governor of a commission to negotiate for the transfer of the quarantine establishment on Staten Island. At the present time an officer of the Public Health Service, on leave, is serving as health officer of the port of New York under appointment from the governor.

The line of defense against the invasion of the so-called epidemic diseases should be made complete at the earliest practicable date. Conditions in Europe have been detrimental to sanitation, and at no time in recent years have plague, cholera, and typhus fever prevailed to the extent that they do to-day. With the close of the war will come a quickening of commercial intercourse with foreign nations and an increased tide of immigration, necessitating the strictest vigilance in the administration of maritime quarantine.

Since the passage of the national quarantine act of February 15, 1893, maritime quarantine has been recognized as a national function. Between that time and 1915 quarantine stations at 67 different places were transferred from State or local to Federal control. The advantages of a uniform system of Federal quarantine are numerous and have been set forth at length in former reports of the Secretary of the Treasury. They may be briefly summarized as follows: Enforcement of regulations and preventive measures in a uniform manner; economy in administration; availability of a large and mobile corps of specially trained quarantine officers, whose experience in quarantinable diseases and knowledge thereof has been increased by duty in foreign countries and insular possessions where such diseases mainly prevail; increased facilities for cooperation by other branches of the Government, especially the immigration and customs services; availability to the Public Health Service of sanitary reports from consular representatives in foreign countries; the ability of the Government to better observe the obligations of international sanitary treaties, and to demand reciprocal action on the part of foreign signatories to such treaties.

National care of lepers.—In the reports of the Secretary of the Treasury for 1914 and 1915 special attention was drawn to the question of the care of lepers by the National Government, and the necessity for a general policy for the control and segregation of sufferers from this disease. A bill (H. R. 193) "To provide for the care and treatment of persons afflicted with leprosy and to prevent the spread

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of leprosy in the United States" was passed by the House of Representatives on May 4, 1916. A similar bill (S. 4086) has been favorably reported to the Senate by the Committee on Public Health and National Quarantine of that body. It is believed that this important public health measure should be enacted into law at the earliest practicable time.

Hygienic Laboratory.—It is desired to renew the recommendation made for several years past, that a new building be provided for the use of the Hygienic Laboratory. The scope and importance of the work of this institution have expanded with the development of the Public Health Service. It is here that the technical studies of the service are for the most part conducted. The increase in work and personnel has resulted in a condition of crowding that seriously interferes with the conduct of accurate scientific work, and it is hoped that an additional building, which it is estimated will cost $175,000, will be provided by Congress.

Publications.—The demand for publications on health subjects continues to increase, and although considerably more than 2,000,000 copies of various publications were distributed during the past year, many requests were of necessity declined, owing to the limited size of editions. It is recommended that the printing appropriation for the Treasury Department be increased in order that this demand may be filled.

Bureau personnel.—The rapidly growing work of the service in the field has steadily increased the administrative work of the bureau. Additions to the clerical force have been provided from time to time, but they have not been sufficient to keep pace with the increasing volume of supervisory and routine work. Overtime work has been necessary on numerous occasions, and the granting of leaves of absence which employees have justly earned at times presents a difficult problem. It is hoped that provision for additional employees will be made in accordance with the estimates submitted.

COAST GUARD.

The Captain Commandant summarizes the operations of the service as follows:

Lives saved or persons rescued from peril	1,216
Persons on board vessels assisted	15,742
Persons in distress cared for	483
Vessels boarded and papers examined	30,510
Vessels seized or reported for violation of law	615
Fines and penalties incurred by vessels reported	$251,820
Regattas and marine parades patrolled in accordance with law	36
Instances of lives saved and vessels assisted	1,453
Instances of miscellaneous assistance	2,021
Derelicts and obstructions to navigation removed or destroyed	30
Value of vessels assisted (including cargoes)	$10,509,655
Value of derelicts recovered and delivered to owners	$128,900
Appropriations for 1916, including repairs to cutters	$5,418,641.06
Net expenditure for maintenance of the service, including repairs to cutters and stations	$5,215,711.34
Estimated unexpended balance	$202,929.72

Through the agency of the Coast Guard cutters and stations the lives of 1,216 persons were actually saved during the fiscal year ended June 30, 1916. There were 1,453 instances of service which involved the saving of life or the salving of property imperiled. As-

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sistance was given in various ways to 15,742 persons on board vessels. It can not, of course, be stated or even estimated what proportion of the latter number would have lost their lives had it not been for the timely aid rendered by the Coast Guard, but it is reasonable to assume, considering the attendant circumstances in many of the instances, that the loss of life would have been considerably augmented. During the year 30 derelicts, constituting a serious menace to navigation, were destroyed or otherwise removed from the paths of commerce by the cutters.

The equipment of the Coast Guard comprises 23 cruising cutters, 24 harbor cutters, and 279 stations.

The total appraised value of property saved from immediate jeopardy was $10,638,555. The cost of maintaining the service for the year was $5,215,711.34.

The *Androscoggin* has been continued on the duty of rendering medical and surgical aid to the crews of American fishermen engaged in deep-sea fishing. During the year 10 separate cruises were made to the fishing banks, and 149 cases of sickness were treated. In the performance of this duty the *Androscoggin* cruised a distance of 9,538 miles, and at all times the services of the cutter were available for the protection of American fishermen in their rights, and to advise them in order that they might avoid any action which might interfere with international agreements concerning fishing.

In addition to the general enforcement of customs laws by all vessels and stations of the Coast Guard there are harbor cutters and launches detailed especially for customs service at the ports of Boston, New York, Philadelphia, Baltimore, Savannah, Pensacola, Mobile, New Orleans, San Francisco, and Seattle, 12 craft in all.

In cooperation with the War Department the Coast Guard has continued the supervision of the anchorage and movements of vessels at the ports of New York and Chicago and on the St. Marys River, Mich. In addition, the commanding officer of the cutter *Acushnet* has been designated as supervisor of the new anchorage ground established by the Secretary of War in Nantucket and Vineyard Sound, Mass.

The continuance of the war in Europe made it necessary, as during the preceding year, to assign several of the cutters on various occasions to enforce the neutrality laws of the country. This resulted in the withdrawal of the vessels so assigned from their regular duties at such times, because in order to enforce neutrality laws effectively the service must be continuous. Owing to the limited number of cruising cutters and the fact that no relief vessels are available, it becomes necessary to discontinue certain of the regular duties of the cutters when their services are required in the enforcement of laws which demand their undivided attention. With a spare vessel each for the Atlantic and Pacific coasts the performance of this important duty could, in most instances, be undertaken without seriously interfering with the regular business of the cruising cutters.

In the interest of the public safety, and as required by law, all the important regattas and marine parades held throughout the country on frequented waters, to the number of 36, were patrolled by Coast Guard cutters.

For the purpose of enforcing the laws governing navigation, motor boats, and customs there were boarded and examined during the year

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30,510 vessels. This is a substantial increase over the number of vessels boarded and examined in each of the preceding two years of the Coast Guard organization. Of the vessels examined, 615 were reported for violation of the laws, involving fines of $251,820.

At the request of the Department of Commerce, certain officers of the Coast Guard were designated as examiners to assist the Steamboat-Inspection Service in carrying out the provisions of the "Seaman's act" in connection with lifeboat men. From November, 1915, to the end of the fiscal year 16,028 applicants were examined. Of that number 11,408 were certificated as lifeboat men and 4,620 rejected.

The patrol of the Bering Sea and North Pacific Ocean to enforce the provisions of law and the convention of 1911, entered into by the United States, Great Britain, Russia, and Japan, for the protection of the fur seal, has been continued. No violations of the sealing treaty were discovered. The *Bear* made the usual cruise through the Bering Sea and Arctic Ocean for the purpose of affording protection to the Government interests in distant parts of Alaska. As in former years, the Department of Justice requested the use of a cutter to transport the United States court to places in southwestern Alaska for the purpose of facilitating the administration of justice. The *McCulloch*, being assigned to this duty, received on board at Valdez on July 9 the United States judge and the necessary court officials and proceeded to the various places indicated by the Department of Justice, returning to Valdez with the floating court August 20, 1915. The *Thetis* made a special cruise to Bird, Laysan, Lisiansky, Ocean, and Midway Islands in January and February, 1916, to inspect the bird reservations on behalf of the Department of Agriculture. No evidences of poaching were found, and it is concluded that the previous cruises of cutters to those islands have had the effect of discouraging the further incursions of bird marauders.

As in the past three years, the international ice observation and ice patrol service was performed by vessels of the Coast Guard. The *Seneca* was detached from the New York division in the early part of February and made two cruises to the vicinity of the Grand Banks on ice-observation duty. In March the *Tampa* was sent from Key West to New York to fit out for this duty, and in the early part of April joined the *Seneca* in maintaining a continuous ice patrol until July 3. Each vessel made three ice patrol cruises of 15 days duration, not including the time consumed in making the run between Halifax and the ice region. Once every day during these cruises bulletins giving information concerning ice conditions were broadcasted for the benefit of trans-Atlantic steamers, and ice information was given at any time to any ship requesting the same. Each day, also, a radiogram defining the ice danger zone was dispatched to the branch hydrographic office at New York City for the general information of shipping.

On August 16, 1915, the Gulf coast was visited by a hurricane of unusual violence and the coast of Texas suffered most severely. During the height of the storm the Coast Guard stations at Velasco, San Luis, and Galveston were destroyed, together with practically all their equipment. As a direct result two surfmen at Velasco and four at San Luis lost their lives. The loss of members of the families of the crews and refugees who sought shelter at the stations brought

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the total casualties at these stations up to 21. In the urgent deficiency act approved February 28, 1916, Congress appropriated $67,000 to replace the stations and equipment. Plans were at once prepared and the work of rehabilitation is now proceeding with all possible dispatch.

Administrative measures.

During the past year the organization of the Coast Guard was completed and regulations prepared and promulgated. Mr. Sumner I. Kimball, General Superintendent, was retired, and the offices of general superintendent and assistant general superintendent were discontinued. An Executive order has been promulgated, defining the status of the Coast Guard when operating as a part of the Navy under the provisions of law.

During the year 70 general courts and 120 minor courts were convened, being a decrease of 44 as compared with the previous year. The probation system for offenders, which was inaugurated in 1910, has proved very efficacious, and excellent results have continued to obtain.

During the year 20 cadets and cadet engineers have been under instruction at the Coast Guard Academy at New London, Conn. Three cadet engineers completed the prescribed course and were commissioned. Competitive examinations were held in June to select the new class, and it is expected to appoint 9 cadets and 1 cadet engineer.

The practice of assigning medical officers of the Public Health Service to cruising cutters has been continued so far as the available personnel of that service would permit. Ten cutters have been provided with surgeons, and it is hoped that during the ensuing fiscal year it may be possible to assign surgeons to all other cruising cutters.

One of the chief functions, if not the primary function, of the Coast Guard is the saving of life and property from the perils of the sea. It is therefore obvious that nothing should be left undone that will contribute to the complete fulfillment of this purpose. The service should be able to avail itself of every reasonable and practicable means which has this end in view. Aviation has now advanced to such a stage that aircraft can be very advantageously used in connection with the saving of life from shipwreck and for searching for derelicts. Anticipating that the Coast Guard must adopt this new method of life saving as soon as practicable, three junior officers have been assigned to undergo training at naval aviation and private schools in order to form the nucleus of a force trained for this purpose. The desirability of providing stations, equipment, and personnel has been presented to Congress and appropriate bills are now pending in the National Legislature for those purposes.

The facilities afforded by the Coast Guard depot at Arundel Cove, Md., have been utilized to a very considerable extent during the past year. Extensive repairs have been completed to the *Comanche*, and the rebuilding of the *Algonquin* has proceeded satisfactorily. Minor repairs have been made to the *Apache*, *Guthrie*, *Wissahickon*, *Pamlico*, *Itasca*, and several smaller craft. With the view of increasing the facilities and usefulness of the depot a technical board has been in session during the year for the purpose of examining into and recommending measures for modernizing the entire equipment and putting

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the power plant in a more efficient and satisfactory condition. As a result, progress has already been made in the introduction of electricity for furnishing light and power necessary to carry on the work.

The new station at Mackinac Island, Mich., was completed during the year, and a site has been secured for the new station to be established at Siuslaw River, Oreg. A suitable site has been determined upon for the new station authorized at Duxbury Reef, Cal., and the necessary steps are now being taken to secure title. The stations at Point of Woods, N. Y., and Cape Fear, N. C., have been rebuilt; at Rockaway, N. Y., and Sandy Hook, N. J., the buildings have been removed to new sites; at Quoddy Head, Me., Damiscove Island, Me., Chatham, Mass., Monomoy, Mass., Fishers Island, N. Y., and Portsmouth, N. C., the launching facilities have been extensively improved. The rebuilding of the stations in Texas to replace those destroyed by the hurricane of August 16, 1915, is now under way. The station at Coos Bay, Oreg., and the boathouse at Fort Point, Cal., have been rebuilt. On the Great Lakes two stations have been rebuilt. Contracts have been awarded for extensive repairs to 10 other stations. Two new self-bailing motor lifeboats and seven self-bailing motor surfboats have been completed and placed in service. The old cutter *Thetis*, stationed at Honolulu, having outlived her usefulness and become unfit for the further uses of the Coast Guard, was condemned and sold to the highest bidder. The New Inlet station on the coast of North Carolina has been discontinued, the interest of humanity and commerce no longer requiring its existence.

Recommendations.

New cutter at Detroit, Mich.—The *Morrill*, which has headquarters at this port and is assigned to the important duties of patrolling the waters of Lakes Ontario, Erie, St. Clair, and Huron and rendering aid to vessels in distress, has outlived her usefulness. Built in 1889, she is now 27 years old, and is too antiquated and entirely inadequate in size and power effectively to perform the duties required of a cruising cutter. It is interesting to note, in this connection, that since the *Morrill* was constructed the average size of merchant vessels which she is called upon to assist has more than doubled. The tonnage of vessels passing by Detroit each year is greater than at any other point in the United States, if not in the world, and a modern and more powerful cutter is urgently needed on this station. It is therefore recommended that Congress be requested to appropriate $350,000 for the construction of a new cruising cutter to replace the *Morrill*.

New cutter at Honolulu, Hawaii.—As elsewhere stated in this report, it has been found necessary to condemn and dispose of the old cutter *Thetis*, formerly stationed at Honolulu. This leaves no vessel available for duty in connection with patrolling the waters of the Hawaiian group and the outlying Midway and Laysan Islands of the Pacific. Assistance to vessels in distress in the vicinity of the important shipping center of Honolulu, the enforcement of neutrality and navigation laws, and the other duties of the Coast Guard must of necessity be neglected if provision is not made for a new vessel to carry on this work. It is therefore recommended that Congress be asked for an appropriation of $400,000 to provide a cutter for replacing the *Thetis*.

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New cutter at Beaufort, N. C.—The vicinity of Cape Hatteras is, as is well known, one of the most dangerous localities in American waters, and a great many vessels annually meet disaster there. It might well be termed the birthplace of derelicts, 10 years of experience with the systematic destruction of derelicts having shown that the majority of these floating menaces to navigation originate within a radius of 50 miles of Hatteras. On the occasion of severe blows there are sometimes from 5 to 10 mishaps to passing vessels within a period of a day or two. Calls for help are sent out broadcast, but can not be answered promptly—sometimes not at all—as the only two available cutters for service in that locality are the *Onondaga*, stationed at Norfolk, Va., and the *Seminole*, with headquarters at Wilmington, N. C. In such times both these vessels have much more assistance work than they can attend to, and there is urgent need for another vessel in that vicinity. It is therefore recommended that a new cutter be authorized for duty around Cape Hatteras, with headquarters at Beaufort, N. C. This is the closest port to the cape, and prompt assistance can be rendered from that port as a base of operations. It is estimated that an efficient vessel for these duties will cost $350,000.

Radio equipment.—Owing to lack of funds, it has been impossible to install modern radio sets on 10 of the cruising cutters, and these vessels are therefore still equipped with the apparatus originally installed years ago. This apparatus is obsolete and inefficient, and in consequence these vessels are seriously handicapped in the performance of their emergent duties. Notwithstanding the fact that an act of Congress requires the installation of auxiliary radio apparatus on seagoing merchant vessels, nine of the cruising cutters are not so provided, because of the lack of funds. It is recommended that Congress be requested to provide additional appropriations in order that these serious deficiencies may be remedied.

Telephone lines.—There are in the Coast Guard 1,500 miles of telephone lines and cables extending intermittently along the coasts of the United States. This system of communication is very important to the Coast Guard in the saving of life and property, and to be efficient it should be practically continuous and, wherever possible, connected with the lines of commercial companies in the vicinity. The whole system should be extended so that all Coast Guard stations, prominent lighthouses, and other advantageous lookout points along the seacoast may be connected. There are 23 Coast Guard stations situated at isolated points which have no wire connections whatever, and the operations of the service are impaired by this lack of means of communication. While the expenditures incident to placing the Coast Guard lines in efficient condition are fully warranted through the saving of life and property along the coast in times of peace, the fact must not be overlooked that the necessary funds would be well expended if only for purposes of national defense. The same equipment and trained personnel will be available for instant use as a coastal communication system in time of national emergency. The great length of our seacoast makes it imperative that we should be prepared with a highly efficient system of coastal communication, and fortunately the necessary facilities for this purpose are alike of value to the people both in peace and war.

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Commuted rations.—The warrant officers and enlisted men of the Coast Guard are entitled under the law to be subsisted by the Government. On cruising cutters rations in kind are issued to the enlisted men through the medium of the general mess. Warrant officers, however, in lieu of rations in kind, receive a money allowance which is supposed to represent the value of the ration, and with this allowance they are expected to defray the cost of subsistence. Many years ago the commuted ration was fixed at 30 cents per day, this amount representing a fair average cost of the ration at that time. As the average cost of rations for the fiscal years 1916, 1915, 1914, and 1913 was $0.483, $0.475, $0.483, and $0.432, respectively, it is very evident that the present allowance of 30 cents a day is totally inadequate. It is, therefore, earnestly recommended that Congress be requested to increase the allowance for a commuted ration from 30 cents to 45 cents.

Pay of enlisted men.—From the year 1863 until 1908 the wages of petty officers and seamen of the former Revenue Cutter Service were fixed so as to meet the fluctuating rates in the merchant service. The act of April 16, 1908, granted an increase of 20 per cent over the then existing rates. It was held by the Comptroller of the Treasury that this act fixed the rates of pay in all grades. The advance of wages of seafaring men since that time has been so great that the rates now paid enlisted men of the Coast Guard are so far below existing merchant rates that the service is unable to enlist a sufficient number of men to man the cutters, and in consequence the activities of the service are seriously hampered. It is, therefore, earnestly recommended that Congress be asked to reenact section 2754, Revised Statutes, to the end that it may be possible again to fix the rates for the warrant and enlisted personnel of the Coast Guard so as to more nearly correspond with those prevailing in the merchant marine for like services.

Clerical force.—The placing of the Coast Guard upon a military basis necessitates the keeping of accurate service records and the medical history of 4,300 officers and men. This has brought much additional work upon the clerical force at headquarters. The work of accounting in connection with the pay of the personnel of the Coast Guard is also considerably increased, due to the fact that the Coast Guard act provides longevity pay and retirement for the entire warrant and enlisted personnel. The warrant and enlisted personnel of the Revenue Cutter Service only were receiving longevity pay prior to the passage of the above act. This provision of the law increases the number of rates of pay for the personnel of the former Life Saving Service from 6 to 28. The work of accounting is also increased by reason of the fact that while there is only one appropriation for the Coast Guard, that appropriation is divided into 12 subheads, and for administrative reasons an account must be kept for each of these subheads. To properly care for the above increased work three additional clerks are needed, and it is requested that Congress be asked to appropriate the necessary funds. The Captain Commandant is now required to perform the duties which formerly devolved upon the general superintendent of the Life Saving Service and the commandant of the Revenue Cutter Service, acting separately, and is much in need of assistance in disposing of the many details to which he must necessarily give his personal attention. Under present

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conditions he can obtain this assistance only by taking a clerk from his regular duties in some section of his office, which, of course, hampers the work of that section. This is most unsatisfactory, and it is recommended that a private secretary be provided for the Captain Commandant.

Commissioned personnel.—The difficulty of filling vacancies in the engineer corps through the present method of appointing and training cadet engineers has greatly increased during the past year. It has now reached such an acute stage that it is necessary to adopt other means at the earliest possible time. The best method seems to be that of amalgamation of the line and engineer corps, without any increase in the total number of officers now authorized by law, and this procedure is recommended. This should include provisions that officers now in the grades of captain of engineers and first lieutenant of engineers when transferred should perform engineering duty only; to appoint only line cadets, they to receive instruction in both line and engineering duties; that in the junior grades of second lieutenant and third lieutenant, all commissioned officers hereafter may be assigned to either line or engineering duty; that after officers have passed through the grade of second lieutenant, a certain number, depending upon the necessities of the service, should specialize in engineering duty only. If existing law be thus amended it is confidently believed that all vacancies hereafter may be filled promptly and that the efficiency of the service will be greatly enhanced.

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REPORT OF THE SECRETARY OF WAR.

WAR DEPARTMENT,
Washington, D. C., November 20, 1916.

To the PRESIDENT:

I have the honor to submit the following report of operations of this department for the past year:

On February 10, 1916, Hon. Lindley M. Garrison resigned as Secretary of War, and on February 11, 1916, Maj. Gen. Hugh L. Scott, United States Army, Chief of Staff, was appointed by you Secretary of War, ad interim, under the provisions of section 179, Revised Statutes. Gen. Scott served until March 9, 1916, when I took the oath of office as Secretary of War.

THE MEXICAN SITUATION.

The raid on Columbus, N. Mex., and the Pershing Expedition.—The disturbed conditions on the Mexican border culminated in an attack by Mexican bandits on Columbus, N. Mex. A description of this attack and of several engagements that followed it, gathered from the reports received by the Department, is given below:

On the night of March 8–9, 1916, the Mexican outlaw, Francisco Villa, with a force variously estimated at from 500 to 1,000 men, crossed the international border from Mexico to the United States at a point about 3 miles west of the border-line gate and concentrated his force for an attack on the town of Columbus, N. Mex. The attack was made during hours of extreme darkness and was for the purpose, according to information subsequently obtained by the military authorities, of looting the town after disposing of the garrison. A fight ensued in which 7 American soldiers were killed and 2 officers and 5 soldiers were wounded, and 8 civilians killed and 2 wounded. The Mexican bandits killed in the town, the camp, and on the border line numbered 67, while the wounded and captured numbered 7. Immediately after the raid one troop of Cavalry crossed the border and pursued the Mexicans. An additional troop, stationed at the border-line gate, also mounted and struck the retreating Mexicans in the flank; the two troops, then joining, continued the pursuit of the Mexicans south for a distance of 12 miles, discontinuing the pursuit only when their ammunition was exhausted and the horses and men, without water and almost exhausted, could continue no longer.

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The bandits in the meantime retreated in a southeasterly direction. During this running fight a number of Mexicans, estimated to be between 70 and 100, were killed, but no accurate estimate of the wounded can be made. Much property and many animals were abandoned by the Mexicans in their flight.

On March 10, 1916, the commanding general of the southern department was directed to organize an adequate military force under the command of Brig. Gen. John J. Pershing, with instructions to proceed promptly across the border in pursuit of the Mexican outlaws who had attacked Columbus. Under these instructions, two columns were organized, one starting from Columbus and the other from Culberson's ranch. The advance of the Columbus column, consisting of 7 troops of the Thirteenth Cavalry, the Sixth and Sixteenth Infantry, Battery C, Sixth Field Artillery, and Ambulance Company No. 7, started, on March 15, on the road, through Palomas, Ascension, Corralitos, toward Casas Grandes. The Culberson column, consisting of the Seventh Cavalry, 10 troops of the Tenth Cavalry, and Battery B, Sixth Field Artillery, left the same night, via the Ojitas route, and arrived at Colonia Dublan, 4 miles north of Nueva Casas Grandes, on the night of March 17. These troops pushed rapidly south, the bandits scattering and fleeing from their front. Gen. Pershing was acting under orders to respect in every manner the sovereignty and rights of Mexico and her people, and to avoid all possible occasion of conflict with, or irritation to, the representatives of the de facto Government of Mexico.

The Parral incident.—During the pursuit of Villa and his followers, Maj. Frank Tompkins, Thirteenth Cavalry, with Troops K and M of that regiment, under the command of Col. W. C. Brown, Tenth Cavalry, camped outside of the town of Parral, Mexico, and sent a detachment of soldiers to the town for the purpose of purchasing supplies, at about 11 o'clock a. m., April 12, 1916. Maj. Tompkins was cordially received by the higher civil and military officials. The Mexican general, Lozano, accompanied Maj. Tompkins on his way to the camp. On the outskirts of the town, groups of native soldiers and civilians jeered, threw stones, and fired on the column. Maj. Tompkins at once took a defensive position north of the railroad but was soon flanked by Mexican troops and forced to retire. The American troops continued to withdraw to avoid further complications until they reached Santa Cruz, 8 miles from Parral. Gen. Lozano attempted to control his men when the fighting first began but failed. The known casualties were 2 American soldiers killed, 2 officers and 4 soldiers wounded, 1 soldier missing, and 40 Mexican soldiers killed. The number of Mexican soldiers wounded is not known, although it is known that one Mexican civilian was wounded.

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The Carrizal incident.—For some time subsequent to this, Gen. Pershing's force maintained itself in substantially the same position, using scouting parties and detachments for the purpose of locating the force of Villa, which had been broken up and scattered in various directions through the difficult and mountainous country through which the expedition had penetrated.

On the morning of the 21st of June, 1916, Troops C and K of the Tenth Cavalry, under the command of Capt. Charles T. Boyd, while on the way to Villa Ahumada on such a scouting expedition, reached the town of Carrizal, and sought permission from the commanding officer of the Mexican forces garrisoned there to pass through the town in order to reach Villa Ahumada. Gen. Gomez, the Mexican commander, sent an officer of his command to the American troops denying the permission requested. During the conference, Mexican troops were seen to move toward the flank of the American troops. The latter assumed a defensive position, but an engagement immediately ensued, in which Capt. Charles T. Boyd and Lieut. Henry R. Adair, Tenth Cavalry, and 7 enlisted men, were killed, and Capt. Lewis S. Morey, Tenth Cavalry, and 9 enlisted men were wounded. Twenty-three enlisted men of the Tenth Cavalry and 1 civilian interpreter were captured and sent to Chihuahua City. The number of Mexicans killed is estimated to have been 39, including Gen. Gomez. The number of wounded is not known. The 23 enlisted men and the civilian interpreter captured by the Mexicans were released and returned to the United States with their property and equipment.

Gen. Pershing's force has been on Mexican soil since the 15th day of March, during part of the time engaged in active and vigorous pursuit of bandits, but during the larger part of the time encamped generally in the neighborhood of Colonia Dublan. The orders to this expedition pointedly enjoined the maintenance of cordial relations with the native population and the most entire respect for the dignity and sovereignty of the Government of Mexico and its military commanders and forces. It gives me great pleasure to point out the fidelity with which these instructions have been obeyed. Gen. Pershing's force has not only maintained itself in a state of physical fitness and cheerful loyalty to its task, but the men have developed into a robust and vigorous body of troops, and their relations with the native population in Mexico have been characterized by cordiality and friendliness, which was highly creditable to the discipline and spirit of American soldiers. I can not too highly praise the members of this expeditionary force, its commander, and its men, for the restraint, self-control, and zeal which they have displayed and for the credit which they have reflected upon American arms.

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Bandit raids across the Mexican border.—In addition to the raid on Columbus, N. Mex., several raids of more or less importance have occurred during the period covered by this report, the most notable of them being:

Glenn Springs, Tex., May 5, 1916, the casualties being 3 American soldiers and 1 civilian killed; 3 American soldiers wounded. At this place, it is believed that 2 Mexican bandits were killed and a number wounded, although it was impossible to secure definite information.

San Ygnacio, Tex., June 15, 1916, the casualties being 4 American soldiers killed and 5 wounded; 6 Mexican bandits killed.

Near Fort Hancock, Tex., July 31, 1916, 1 American soldier and 1 civilian (United States customs inspector) killed, and 1 American soldier wounded; 3 Mexicans killed and 3 captured by Mexican de facto Government troops.

Call of the Organized Militia and National Guard into the service of the United States.—The known presence of large numbers of bandit forces and irregular military organizations, hostile alike to the de facto Government of Mexico and to the Government and people of the United States, made it apparent that further aggression upon the territory of the United States was to be expected. The Mexican border is a long and irregular boundary line, passing in places through cities and towns, but for great stretches running through sparsely settled regions and through a wild and difficult country. The forces at the disposal of the commander of the Southern Department for the protection of this border had been strengthened from time to time by the transfer to that department of a very large part of the Regular Army within the limits of the continental United States, including some detachments of Coast Artillery forces, withdrawn from their coast defense stations. It was, however, clear that even thus strengthened the forces under Gen. Funston's command were inadequate to patrol this long and difficult line and to assure safety to the life and property of American citizens against raids and depredations. The President, therefore, deemed it proper to exercise the authority vested in him by the Constitution and laws to call out the Organized Militia. On May 9, 1916, he issued a call, through the governors of the States of Arizona, New Mexico, and Texas, directing the concentration of the militia of those States at places to be designated by the commanding general of the Southern Department.

San Antonio, Columbus, and Douglas were designated as the places of concentration for the Militia of Texas, Arizona, and New Mexico, respectively, and upon the arrival of the militia, the necessary procedure for their muster into the service of the United States, under the provisions of the act approved January 21, 1903, as amended by the act of Congress approved May 27, 1908, was at once entered upon and vigorously prosecuted, the greater part of the militia, so

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called, having been mustered into the service of the United States before the close of the fiscal year. It was also directed by the department that the Federal authorities assume the duty of recruiting for the militia service of the United States. In accordance with these directions, the commanding general of the Southern Department was ordered on May 27, 1916, to detail officers and enlisted men from the Texas Militia mustered into the service of the United States to recruit the Militia of Texas to its full strength, and similar orders with respect to recruiting were issued with regard to the militia of other States at a later date. The reasons which caused the President to issue the call for the Militia of Texas, Arizona, and New Mexico on May 9, 1916, impelled him, on June 18, 1916, to call into the service of the United States a large part of the Organized Militia and National Guard of the other States of the Union and the District of Columbia, the call being duly issued on the date last mentioned through the governors of all the States concerned and the Commanding General of the District of Columbia Militia.

In the meantime, the National-Defense Act had been approved June 3, 1916, providing, among other things, for the transition of the Organized Militia of the several States and the District of Columbia into the National Guard, by taking the oath prescribed by that act, and this transition was in progress in the several States when the call of June 18 was made. The call of the President found the militia at the very beginning of its transition from the Organized Militia, provided in the earlier legislation, into the National Guard, provided by the recent National-Defense Act. There had been no time for the completion of the procedures provided for perfecting the National Guard, so that the mass of detail which under ordinary circumstances is involved in the concentration of the militia at various mobilization points was increased by the fact that some of the organizations existed wholly under their earlier status, some had completed their organization under the National-Defense Act, and some were in the course of changing their relation to the Federal Government from that provided by one to that provided by the other of these laws. Moreover, the provisions of the National-Defense Act, not having previously been applied, were required to be interpreted in many respects. There had not yet been time to work out in an orderly way interpretations of the act and instructions under it for the guidance either of officers of the Regular Army or of the militia, who were required to cooperate in such a movement. The task thus imposed upon the department and the chiefs of the bureaus concerned was most exacting, and I can not too highly praise the zeal and intelligence with which these difficulties were met or the self-sacrifice with which the personnel of the department devoted itself day and night to the speedy, orderly, and successful accomplishment of its task.

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To have worked out each detail, completed the transition of such State organizations, and recruited it to its full strength before transferring these forces to the border would have taken more time than the exigencies of the situation permitted. Instructions were therefore given on June 23 to the commanding generals of the Eastern Central, and Western Departments to transfer each unit to the border as soon as it was reasonably equipped for field service.

On August 31, 1916, the date of the latest complete returns received, the troops in the Southern Department consisted of 2,160 officers and 45,873 enlisted men of the Regular Army, and 5,446 officers and 105,080 enlisted men of the National Guard, making a total of 7,606 officers and 150,953 enlisted men in that department. On the date given there were 1,557 officers and 28,176 enlisted men of the National Guard in the other military departments, making a total of 7,003 officers and 133,256 enlisted men of the National Guard in the Federal service on August 31, 1916.

The present situation.—The mere presence of this enlarged force on the border has served to preserve peace and to protect life and property. Disturbances by outlaws and bandits in northern Mexico have continued and roving bands of various numbers have moved through the territory, harassing Mexican forces and raiding Mexican communities, but they have not ventured an attack upon the people of the United States. In the meantime the militia forces on the border have been drilled, their organizations perfected, and their personnel accustomed to life in camp in the performance of this defensive duty. On the advice of the military commanders, it has been determined that full protection can be given on the border without utilizing the entire force of the National Guard in the service of the United States. The department therefore determined to send from time to time from their State mobilization camps portions of the National Guard which had not as yet done border duty, and in exchange for these freshly arrived contingents, the commanding general of the Southern Department has been directed to select equivalent numbers of troops which have been in actual border service for return to their home stations for muster out. These movements have been taking place with some rapidity and are now substantially completed. The number of National Guard now on the border is substantially 110,000 officers and men.

From the beginning the department appreciated the sacrifice which the members of the National Guard were called upon to make in the interest of the national defense. These organizations, made up of men engaged in all sorts of industrial, commercial, and professional activity, were summoned suddenly and without opportunity adequately to provide for a prolonged absence from home. In many instances family illness, business commitments, and other pressing

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engagements had to be faced, and an effort was made by the department in the presence of extreme cases of hardships to minimize the sacrifice. The most distressing class of cases were, of course, those of men with dependent families or relatives for whom no provision had been made and who were entirely dependent upon the peace-time earnings of the citizen soldier. A number of cases were presented in which members of the National Guard were the occupants of public office, the continued functions of which were essential to the National and State Governments, and in some instances members of the National Guard were found to be pivotal and apparently indispensable directors of industrial and commercial enterprises upon which the Government is obliged to rely for the proper supply of commissary and equipment to the Army itself. The department attempted to deal with these embarrassments on the principle that the thing best for the National Guard, the thing which would tend to strengthen and build it up, would be most in harmony with the intention of the Congress in the National-Defense Act. A limited number of discharges were therefore granted on the ground of public policy, so as not to weaken the spirit of the National Guard at home by depriving it of the regular performance of the governmental functions or of the industrial and commercial operations upon which its supply and maintenance depended. For the relief of those members of the National Guard having dependent families or relatives an order was made authorizing the discharge of all soldiers so circumstanced upon their own application. A relatively small number of members of the National Guard took advantage of this order and were returned to their homes. By this means acute distress was prevented and the organization of community relief for dependent families, which had been undertaken in many places as soon as the call for the Guard was issued, was rendered less burdensome. The Congress later appropriated the sum of $2,000,000 to be expended by the department under certain limitations provided in the act in the care of the dependents of soldiers, and this operation made unnecessary the continuance of the original order authorizing the discharge of such members of the Guard. The order was therefore withdrawn, and the department is now engaged in the distribution of the funds provided by Congress for the object stated.

The National Guard is, both by law and in contemplation of its members, the line of defense immediately back of the Regular Army. It is organized for the purpose of responding quickly to emergency calls, but our country has been singularly free from international boundary difficulty which required more force than could be found in the organizations of the Regular Army within the country. The sort of duty presented by the Mexican difficulty, therefore, is unusual and may well have been unanticipated. The readiness with

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which the militia responded to this call was most gratifying, and when the transitional condition in which it was found by the call is remembered, the confusions and difficulties attending the mobilization will seem insignificant in comparison with its success and with the splendid spirit with which both men and officers of the National Guard responded.

The duty in Mexico and on the border has been of the most trying kind which soldiers can be called upon to perform. The movement and enthusiasm of active military operations supplies a spirit of its own, but the soldier who is required to wait inactive finds it difficult to reconcile himself to the privations of camp life and to the separations from home, friends, and normal occupation required of him, and yet this most trying of services is just what has been required of our Regular Army and of the National Guard on the border. Their time has of course been used in profitable military training, and an enormous incidental advantage has accrued to the country therefrom. But it is not strange that some restlessness and complaint have been heard both from an occasional member of one of the Guard forces and from their friends at home who have not appreciated the necessity for their sacrifice, in view of the absence of active operations. These complaints, however, have been minor and infrequent. The spirit of the regiments has been high, their service cheerful, and their appreciation both of their opportunity for public service and of the value of the training received by them has been evidenced from all quarters.

In a subsequent part of this report I deal with the question of health and sanitation, so that I here but remark in passing that the health of the soldiers on the border has been remarkable; their freedom from camp fevers and from serious illnesses of all kinds is perhaps as striking an incident of efficient medical supervision as can be found in the history of any army. The initial difficulties of supply and transportation were soon solved. I have personally met the officers and men of several regiments which have returned from the border, and without minimizing the inconvenience to which these men have been put and the sacrifices which they have made, I can not help feeling that they have received some compensation from the experience, as they present uniformly pictures of splendid, vigorous bodies of men, trained and disciplined, and with the added dignity which comes from having performed a saving service for their country.

Many valuable lessons will be learned from this mobilization experience which the department hopes can be applied in further organization of the National Guard. As yet it is too soon to sum up in detail all of these experiences, nor would it be just to the Guard to measure its response to this need by a mere statistical exhibit of its condition

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at the time of the call or the time of the transfer of its units to the border. In this connection, however, I desire to point out that under modern conditions one of the great needs of the Army organization is a suitable program of recreational activity for soldiers during periods of enforced inactivity. In his home station the soldier of the Regular Army will undoubtedly in the future make use more and more largely of educational opportunities and there will be automatically evolved certain recreational activities proper to the place, the climate, and the disposition of the men, but the soldier in camp has not the permanent facilities which can be found in the well-ordered Army post. His entire time can not be spent in drill, and there is, therefore, very great need for the development of a systematic plan which will provide for the soldier under such conditions an opportunity for sound, healthful, and agreeable recreation. The Young Men's Christian Association has realized this need and most generously undertaken to provide facilities for our troops on the border which under the conditions may be regarded as comparable to social and recreational opportunities offered by their institutions to the young men of our cities. Undoubtedly, this service has been of the highest value and has been appreciated by the men as well as by the department. I venture, however, to express the hope that we shall be able to devise, as a part of our own systematic provision for the Army, recreational facilities and opportunities which will follow the Army to its camp, and both brighten the life of the Army and occupy the leisure of its members when the exigencies of the service require their separation from accustomed opportunities of the kind. In the development of such a program we can remember that for the most part any Army is made up of young men, and those wholesome recreations and activities to which young men normally resort can be made the basis of what the Army ought to undertake to supply for its own uses.

Transportation of the Regular Army and militia to the Mexican border.—In a previous portion of this report I have discussed the raid on Columbus, N. Mex., and the military measures adopted in consequence of it, including the call of the Organized Militia and National Guard into the service of the United States. It seems to me worth while, however, to make a somewhat detailed reference to the transportation of these troops to the Mexican border, both because I desire an opportunity to report specifically the efficient cooperation of the railroads with the Government and also because the general question of transportation facilities is one of very great military importance.

The railroads of the United States have been built in response to commercial and industrial needs. Our continent has been developed and opened up by a process of railroad building which

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had in view the transportation of raw materials and finished products, rendering our mineral and lumber resources accessible and enabling our rapidly increasing population to develop the agricultural and economic resources of the Nation. It is probably just to say, however, that very little thought has been given in our railroad development to their possible use for military purposes. We have built no strategic railroads, our frontiers have been neglected as possible scenes of military operations, and there has accordingly been little or no railroad building which had as its object a possible call upon the railroads of the country rapidly to transport large bodies of men and to maintain continuous streams of military supplies for their support. This was not unnatural, as the wide seas have been the frontier of the United States, and we have been in contact with no highly organized and powerful military nation. Our relations with our continental neighbors have been peaceful and friendly, and the development of civilization on this continent has had an industrial and commercial aspect with little or no suggestion of military preparation. We have, it is true, given far less thought to the problem of transportation from a military point of view than other great nations, but our occasion for thinking in that direction has been less urgent. The War College Division of the General Staff has made interesting and valuable studies upon the mobilization and use of transportation equipment, and undoubtedly the Council of National Defense will give further valuable study to this question; but the disturbed condition on the Mexican border in consequence of the Columbus raid gave us an actual experiment in the use of our railroads, the readiness with which their facilities could be organized in the service of the Government, and a most instructive and helpful demonstration of the hearty cooperation which the Government can expect from those who manage these great transportation enterprises. From the report of the Quartermaster General I quote the following description of the steps taken and the results obtained:

COOPERATION BETWEEN THE TRANSPORTATION COMPANIES AND THE QUARTERMASTER CORPS.

Especial attention was devoted during the fiscal year 1916 to the establishment of a closer cooperation between the Quartermaster Corps and the various transportation interests with a view to coordination in the movements of troops and supplies for the Army. The officer in charge of the transportation division, Office of the Quartermaster General, appeared before several of the transportation associations and outlined a plan of mutual cooperation which would be of benefit to both the carriers and the Government in case any necessity arose involving the transportation of large numbers of troops, the plan outlined being practically that which has since been placed in effect.

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Under date of October 16, 1915, a letter was prepared in the Office of the Quartermaster General recommending that the Secretary of War communicate with the American Railway Association (which association is composed of the presidents, general managers, and other chief operating officials of the American railways), and suggest the establishment within that association of a committee on military transportation to whom the department could look for any information that might be desired as to the railroads of the United States, and with a further view to coordination and cooperation between the railroads and the War Department in the transportation of troops and supplies of the United States. On October 26, 1915, a letter of the nature indicated was sent by the Secretary of War to the American Railway Association, and after some further correspondence a "special committee on cooperation with the military authorities" was appointed by that association. This committee was, and is, composed of the following gentlemen:

Fairfax Harrison (chairman), president Southern Railway.

R. M. Aishton, president Chicago & North Western Railway.

A. W. Thompson, vice president Baltimore & Ohio Railroad.

W. G. Besler, president Central Railroad of New Jersey.

Conferences were held with this committee, and a general plan of cooperation outlined to be placed in effect at the time of any public emergency.

Immediately after the call for mobilization of the State troops was issued this committee met in the Office of the Quartermaster General with Lieut. Col. Chauncey B. Baker, representing that office, and the plans previously determined were at once placed in effect. Arrangements were made for placing a competent railroad official at each department headquarters, at each mobilization camp, and in the Office of the Quartermaster General. These representatives were to act as an advisor to the officers of the Quartermaster Corps at these various points on any matters affecting rail transportation. They were all men of the highest reputation in the railroad world and did not represent any particular railroad, but were representatives of all lines interested.

Directly after the announcement of the mobilization this committee of the American Railway Association also called upon representatives of the various railroads of the country to meet in Washington for the purpose of extending every possible assistance among the railroads themselves. The object of this meeting was to make all of the railroad equipment, motive power, and personnel of the country available to affect this movement in the most expeditious manner possible.

The main object of the special committee on cooperation with the military authorities was to *assist* the War Department in the transportation of troops and supplies, and the committee acted only on instructions from the War Department, except in matters directly affecting the operation of trains.

When it was definitely known that an organization was to move the camp quartermaster consulted with the American Railroad Association representative at his camp and advised him as to the strength of the organization, and it was the duty of the American Railway Association representative to see that all railroad equipment, other than tourist cars, was promptly assembled in time for the movement. Tourist cars were ordered direct from the Office of the Quartermaster General, and the camp quartermaster was immediately advised by wire whether tourist cars could be furnished from point of origin; if not, the American Railway Association representative was so advised, and it was his duty to see that coaches were secured for the movement.

In 1912 the Quartermaster General's Office took up with the American Railway Master Car Builders' Association the question of placing placards, in time

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of war or threatened war, on all carload shipments of Government property. As a result of a large amount of correspondence a plan was formulated which was accepted by all the railroads in the country, and a series of placards adopted. Through the agency of the American Railway Association all railway officials and employees were notified that cars so placarded must be given right of way from point of origin to point of destination. Such cars are placed in the fastest moving freight trains and kept constantly moving to point of destination, where they are immediately delivered, and at once identified, shifted into position, discharged, and released without the necessity of waiting for the formal bills of lading and official papers of the railways and the Government, the placards themselves serving to fully identify all shipments. All placards bear the legend "UNITED STATES ARMY" at the head, followed by the department to which supplies belong, the car initial, car number, point of shipment, contents, consignee, destination, routing, date shipped, and consignor. Cars bearing these cards are never sidetracked nor shifted into yards except to be placed in through freight trains. Should a car become damaged through any cause, it is given preference and precedence for any repairs; and if repairs require an extended period, contents are loaded into another car and the movement continued.

As a result of this understanding between the railroads and the Quartermaster General's Office shipments of freight are being made with remarkable expedition. Many instances are cited where freight shipments have been sent through from Washington and vicinity to the Texas border in four days, and from New York and vicinity in five days or less; freight from Philadelphia, Pa., has reached San Antonio, Tex., in 79 hours; from the Lakes to the border shipments have been made in an elapsed time of a little more than 48 hours.

The hearty cooperation of the railroads in making these shipments has been rendered without any hesitation whatever, with all the energy possible, and without additional charge to the Government.

It is believed that this simple device, with the fullest cooperation of the railroads, has removed one of the principal sources of criticism applicable to the period of mobilization in 1898.

Where special, urgent shipments have been made they have been followed through by wire to destination, and most satisfactory results have been obtained in every instance.

As a specific example showing how the cooperation of the railroad companies assisted the Army there may be cited the case of the first motor truck company purchased for the expeditionary forces in Mexico.

Bids were invited for a number of trucks, and award made about 5 o'clock the evening of March 14. Twenty-seven trucks were purchased under this advertisement in Wisconsin. These trucks were inspected, the personnel to operate them employed, the trucks were loaded in 14 cars, and tourist car furnished for the personnel, and the train left at 3.11 a. m. March 16. It arrived at Columbus, N. Mex., 1,591 miles away, shortly after noon on the 18th; the trucks were unloaded from the cars, loaded with supplies, and sent across the border, reaching Gen. Pershing's command with adequate supplies of food before he had exhausted the supplies taken with him from Columbus.

In a little more than four days after orders were placed with the manufacturers these trucks had gone across the border at Columbus, 1,600 miles away from the factory, loaded with supplies.

The general plan of cooperation also provided for coordinating the duties of the Pullman Co. in furnishing sleeping-car equipment, and under this plan, when it became necessary to mobilize the Organized Militia, the supply and distribution of tourist sleeping cars was handled directly under the instructions

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of the Quartermaster General of the Army. In order to centralize the furnishing of tourist sleepers at the point most convenient to the Government, to utilize the available supply of these cars to the best advantage, and to keep them constantly in service the Pullman Co. changed the supervision of the supply and movement of these cars from the headquarters of the company at Chicago to Washington, where they stationed Mr. C. W. Henry, assistant to superintendent of car service, with a competent force. Mr. Henry was in immediate touch with the Office of the Quartermaster General, and on receipt of request from camp quartermasters for tourist cars he was advised of the needs and at once took steps to supply the cars if they were available at any point. Reports were received by him daily from all parts of the United States showing the number of tourist cars that were available in all sections of the country, and in cases when, on account of the necessity for immediate departure, it was impossible to furnish cars from the starting point, this branch of the Pullman Co. used every effort to furnish the cars en route, immediately starting such cars as could be secured over the route to be taken by the troops, so that they could be transferred to tourist sleeping cars at the first possible opportunity. During the first two weeks of the concentration this force was on duty until nearly midnight every day, including Sundays, and deserves great credit for the excellent assistance rendered the Government.

The great value of the plans made for cooperation and coordination between the railroads and the War Department was fully demonstrated in the mobilization and concentration of the Organized Militia. Every assistance possible was rendered the Government, not only by the American Railway Association and the Pullman Co., but by the various passenger associations, and by the officials and employees of all the railroads concerned, from the presidents of the companies down to the minor employees. In addition to the representative of the American Railway Association, nearly all the important southwestern railway lines had representatives in Washington during the entire movement, and these representatives kept in close touch with the transportation over their respective lines and were available for consultation at any time, if desired by the department. The cooperation of the American Railway Association representatives, with their expert knowledge of transportation conditions, has proved of great value to the department, and quartermasters have been relieved of a great deal of trouble and annoyance heretofore experienced in the mobilization of large bodies of troops.

It is believed that the careful plan of cooperation adopted and the assistance of the transportation interests in this plan has demonstrated that the problem of rail congestion, which was the bugaboo of the mobilization of troops in 1898, has been entirely eliminated.

The arrangements entered into with railway lines in eastern and western territory, as referred to in the Annual Report of the Quartermaster General for 1915, pages 50 and 51, were continued during the fiscal year 1916, and resulted in a saving of approximately $40,000 on passenger traffic. Negotiations are now under way with lines in New England and southeastern territory on a similar basis with every prospect of a successful conclusion; this arrangement will then cover the entire United States. Briefly, it provides for a deduction of 5 per cent from the usual fare available to the Government and for an equitable distribution of the traffic between all lines interested; it simplifies the settlement of accounts and insures the cooperation of the various carriers.

During the early days of the transportation of large bodies of the militia to the Mexican border some uneasiness was felt throughout the country lest the great distances to be traveled by some of these

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organizations and the hurried preparation of their supplies might produce conditions prejudicial to the health and comfort of the men. This apprehension was quickly allayed. The cases of inconvenience were relatively few. No really serious situation developed, and it seems to me just to claim for the War Department and for the cooperating railroads that they managed a task, although of unusual difficulty and size, with great skill and most commendable success. After the first hurried days order rapidly appeared and although we have during the past summer moved larger bodies of troops longer distances than is at all customary, the movements have been carried out with order, and most comfortable and adequate provision has been made for the men both going to and returning from the Mexican border.

Motor-truck transportation.—The absence of railroad facilities paralleling the international boundary between Mexico and the United States and the penetration of the Pershing expedition into Mexico at a point removed from immediate access to railroad facilities led to very large use by the Army of motor trucks. The report of the Quartermaster General covers in detail the purchases made and the service rendered. I refer to the subject only to point out that the department was able to maintain by motor truck an unbroken supply service for Gen. Pershing and enormously to increase the efficiency of the border patrol by the use of motor vehicles. The development of the motor truck in the past few years has produced a vehicle which is able to traverse wild, unbroken country and, except under abnormal conditions, to transport soldiers and their supplies with certainty and rapidity. Our whole experience in this regard is of great value, and careful studies are being made of the efficiency of the various types of motor vehicles in the border service. Undoubtedly a standard-size truck and a standard design will be evolved, and the subsequent equipment of the Army with motor baggage trains and motor-propelled ordnance will proceed upon a sounder foundation of information than could have been possible but for the lessons learned from this experience.

THE ARMY.

Increase in enlisted strength in an emergency.—By joint resolution approved March 17, 1916, Congress made provision for increasing the number of enlisted men of the Army in an emergency, in the following language:

* * * When in the judgment of the President an emergency arises which makes it necessary, all organizations of the Army which are now below the maximum enlisted strength authorized by law shall be raised forthwith to that strength and shall be maintained as nearly as possible thereat so long as the emergency shall continue: *Provided*, That the total enlisted strength of any of said arms of the service shall not include unassigned recruits

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therefor at depots or elsewhere, but such recruits shall at no time exceed by more than five per centum the total enlisted strength prescribed for such arms; and the enlisted men now or hereafter authorized by law for other branches of the military service shall be provided and maintained without any impairment of the enlisted strength prescribed for any of said arms.

The strength of the Army authorized under the provisions of the act of February 2, 1901, as modified by the joint resolution of March 17, 1916, is as follows:

Branches of service.	Enlisted men.
Quartermaster Corps	[a] 6,403
Medical Department	[b]
Corps of Engineers	1,982
Ordnance Department	1,115
Signal Corps	1,472
Cavalry	17,594
Field Artillery	6,358
Coast Artillery Corps	19,321
Infantry	54,443
Porto Rico Regiment of Infantry	599
United States Military Academy detachments	632
Recruiting parties, recruit depots, and unassigned recruits	6,098
United States Disciplinary Barracks guards	350
Service-school detachments	746
With disciplinary organizations	110
Mounted orderlies	7
Indian scouts	75
Total Regular Army	117,305
Philippine scouts	5,733
Aggregate	123,038

[a] Includes enlisted strength (6,000 men) of the Quartermaster Corps, which under the provisions of the act of Congress approved Aug. 24, 1912 (37 Stat. L., 593), are not to be counted as a part of the enlisted force provided by law. Under the provisions of the act of June 3, 1916, the enlisted strength of the Quartermaster Corps is included in the strength of the Regular Army.

[b] The act of June 3, 1916, provides that the enlisted strength of the Hospital Corps is not to be counted as a part of the enlisted strength of the Army, which is similar to the provision contained in the act of Mar. 1, 1887 (24 Stat. L., 435). The authorized strength of the Hospital Corps on June 30, 1916, was 5,388.

Recruiting.—For some time prior to the date of this enactment the general recruiting service had been so successful in keeping the Army filled to the strength then authorized that recruiting had been curtailed and at various times it had been found necessary to discontinue the acceptance of new applicants for enlistment in some arms of the service.

Anticipating the action of Congress in enacting the joint resolution of March 17, 1916, orders were given on March 13, 1916, to reopen recruiting stations that had been closed and to open additional ones in productive places and to prosecute the work of obtaining recruits for the Army without regard to hours. Recruiting officers circularized the population of the districts in which they were operating with special circulars showing the advantages of Army life and urging all qualified to avail themselves of those advantages.

An experienced sergeant in the recruiting service was detailed with the Government exhibit on the "Safety-first" train, which made a tour of the country during last spring and summer. Printed

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matter relating to the recruiting service was distributed in large quantities, including thousands of copies of the law enacted May 4, 1916, authorizing the appointment of cadets to the United States Military Academy from the ranks of the Army. This seemed to arouse a great deal of interest among a very desirable class of young men who visited the train.

All recruiting officers were also advised of the provisions of this law and instructed to give it the widest publicity possible.

A booklet setting forth the experiences of a recruit for the Army at a recruit depot was also published. It was prepared by a newspaper reporter who entered the recruit depot as a recruit and was afforded every opportunity to acquaint himself thoroughly with the manner in which the Army prepares its soldiers at recruit depots before sending them to their organizations. The author lived the life of a recruit at the depot, was granted no indulgences other than those extended to other recruits, and relates his experiences in a thoroughly unprejudiced manner.

Another publication issued by the recruiting service shows the various employments in civil life open to soldiers who have availed themselves of the many opportunities for vocational training afforded by the Army and have been discharged with a good character. It is contemplated to have the recruiting officers scattered throughout the country in the centers of population lend every assistance possible toward securing for honorably discharged soldiers employment in civil life in the various capacities set forth in the publication. It is hoped and believed that the fact made known through this publication that the Government does not lose interest in the former soldier upon his discharge from the service, but aids him in applying in civil life the vocational training he has acquired in the Army, will go a long way toward convincing the public that the term of service in the Army is a very desirable experience for any young man—an experience that will not only aid him physically and mentally, that will not only train him morally and manually, but that will also enable him to advance himself by reason of that mental and manual training in civil life after he shall have been separated from military service.

There has been an increase in the number of accepted applicants for enlistment since the passage of the joint resolution referred to, but it has not been as marked an increase as desired. This is undoubtedly due to several causes. The first and probably the principal cause is the present labor condition throughout the country. Recruiting officers from all sections report that never in their experience has there been the demand for labor in all lines of industry that exists and that has existed for the past several months. In the large manufacturing districts the demand for labor is far in excess of the

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supply. Wages are high and all who desire employment readily secure it. In the agricultural districts the demand for labor was active during the summer and early fall, and the supply was inadequate. Thus the recruiting service, which is simply one of many employers, has been unable to secure the recruits needed. However, during June, July, and August, 1916, the number of enlistments increased practically 175 per cent over the number for the corresponding months in 1915.

The National-Defense Act approved June 3, 1916, authorizes the President, in his discretion, to utilize the services of postmasters of the second, third, and fourth classes in procuring enlistments of recruits for the Army, and as a result of your action under this law all postmasters of the second, third, and fourth classes in the United States, estimated to be about 56,000, are now authorized to act as recruiting agents for the Army.

In addition to the duty of recruiting for the Regular Army, the recruiting service has been charged recently with the duty of recruiting for the Organized Militia mustered into the military service of the United States.

Authorized strength.—On June 30, 1916, the authorized strength of the Regular Army, including Medical Department, was 5,018 officers and 122,693 enlisted men; an increase of 184 officers and 25,445 enlisted men over the preceding year. In addition, the authorized strength of the Philippine Scouts was 182 officers and 5,733 enlisted men, the same as during the preceding year.

Actual strength.—On June 30, 1916, the actual strength of the Regular Army, including Medical Department, was 4,843 officers and 97,013 enlisted men; a total of 101,856, and an increase during the year of 227 officers and 1,248 enlisted men. In addition to this, the actual strength of the Philippine Scouts was 182 officers, the same as last year, and 5,603 enlisted men, an increase of 173 during the year.

On that date the Army, including the Philippine Scouts, was distributed geographically as follows:

Geographical distribution.	Officers.	Enlisted men.	Total.
In the United States[a]	3,622	67,416	71,038
In Alaska	23	769	792
In the Philippine Islands:			
Regular Army	480	11,404	11,884
Philippine Scouts	182	5,603	5,785
In China	41	1,233	1,274
In Porto Rico	35	679	714
In Hawaii	333	8,112	8,445
In the Canal Zone	253	6,846	7,099
Troops en route and officers at foreign stations	56	554	610
Total	[b] 5,025	[c] 102,616	107,641

[a] Includes troops serving in Mexico.
[b] Includes 154 first lieutenants of the Medical Reserve Corps.
[c] Includes 4,670 enlisted men of the Medical Department.

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Increased strength and organization provided by National-Defense Act.—The National-Defense Act of June 3, 1916, authorized a considerable increase in the national forces; the increase in the number of officers and enlisted men of the Regular Army to be made in five annual increments, beginning July 1, 1916. It provides for four classes of soldiers in the United States: First, the Regular Army; second, the National Guard; third, the Enlisted Reserve Corps; all of which shall exist in time of peace; and, fourth, the Volunteer Army, which shall be raised only in time of war. The peace strength of the Regular Army is fixed by the act at approximately 11,450 officers, including the 182 officers of the Philippine Scouts; not to exceed 175,000 troops of the line (including the Ordnance Department), approximately 42,750 noncombatant troops, including the unassigned recruits, and 5,733 Philippine Scouts, making a total of approximately 223,580. The total enlisted strength of the Medical Department is limited to 5 per cent of the total enlisted strength of the Army, and it can not be determined at this time because the strength of all the other staff corps and departments is not fixed. The National Guard will probably consist of about 17,000 officers and 440,000 men. The number of men who will join the Enlisted Reserve Corps can not be foretold. They are practically enlisted specialists for the technical departments of the Army recruited in time of peace for use in time of war only, and are subject in time of peace to short periods of training yearly. Volunteers can be called in time of war when and in such numbers as Congress shall authorize.

The maximum number of officers (war strength) of the Regular Army under the act is approximately 12,030, the additional 580 over peace strength being in the Medical Department. The exact number of officers authorized can not be given because the number of additional officers varies from time to time, and the number of retired officers that will be transferred to the active list under the provisions of the act of March 4, 1915, can not be foretold. The total maximum enlisted strength (war strength) of the Regular Army, including the Philippine Scouts, is approximately 298,000. This figure is based on total increases in the staff corps and departments in proportion to the increases authorized for the first increment.

The total number of officers authorized for the fiscal year 1917 is 7,252, including 182 officers of the Philippine Scouts.

By General Orders No. 50, September 23, 1916, as amended, the organization of the authorized enlisted strength of the Army, including the first increment under the act of June 3, 1916, was established as follows:

Infantry, 38 regiments	51,224
Cavalry, 17 regiments	17,357

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Field Artillery, 9 regiments	7,881
Engineers, 3 regiments and 1 mounted company	2,198
Coast Artillery Corps	21,423
Staff corps and departments	19,224
Philippine Scouts	5,733
Miscellaneous organizations and special allowances	13,857
Total enlisted strength of the Army (including the Medical Department)	138,897
Total enlisted strength of the Army, excluding the Medical Department	132,283
Total enlisted strength of the Army, excluding the Porto Rico Regiment, the Philippine Scouts, and the unassigned recruits, and including the Medical Department	123,193
Total enlisted force of the line of the Regular Army, excluding the Philippine Scouts and the enlisted men of the Quartermaster Corps, of the Medical Department, and of the Signal Corps, and the unassigned recruits	106,558

Actual increase.—The actual increase in the Army, provided as a part of the general legislation for preparedness, is as follows:

An increase in the Army of about 6,420 officers at minimum or peace strength and about 7,000 at maximum strength, and of about 142,000 enlisted men at minimum and about 170,000 at maximum strength, the increase to be made in five annual increments.—The Army will be increased 34⅓ regiments of Infantry, 10 regiments of Cavalry, 15 regiments of Field Artillery, 93 companies of Coast Artillery, 5 regiments of Engineers, 2 battalions of Mounted Engineers, the necessary number of auxiliary troops in the Medical Department, Quartermaster Corps, Signal Corps, and the unassigned recruits, and in addition thereto the number of Philippine Scouts that may be determined upon by the President, not to exceed a maximum of 12,000.

The number of general officers of the Army has been increased from 7 major generals and 17 brigadier generals to 11 major generals and 36 brigadier generals. This will provide the necessary general officers to command the divisions and brigades and furnish the general officers for the General Staff.

The General Staff Corps has been increased from 38 officers to 57 officers.

The Adjutant General's Department, the Inspector General's Department, the Judge Advocate General's Department, the Quartermaster Corps, the Medical Department, the Corps of Engineers, Ordnance Department, and Signal Corps have all been materially increased to meet the increased size of the Regular Army. There is nothing materially new in regard to these departments or corps.

The increase in the Regular Army will be made in five annual increments, beginning July 1, 1916, and running to July 1, 1920, although the President is authorized to make the increase more rapidly in case of emergency.

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The figures given above (except those quoted from General Orders No. 50) are approximate, and while based upon the best data obtainable at this time, are subject to material changes, because the strength of some of the staff corps and departments is not fixed by the act but is left to the discretion of the President to be fixed by him from time to time, in accordance with the needs of the service.

An officers' reserve corps; a reserve officers' training corps, and an enlisted reserve corps.—An officers' reserve corps is provided which will authorize the commissioning of civilians up to and including the grade of major in the various branches of the Army. These men can be selected and trained in time of peace, and the officers so obtained will be far better prepared than any volunteers that could be raised hurriedly at the outbreak of war. In order to obtain these reserve officers, a reserve officers' training corps is authorized which will consist of units at the various colleges, academies, and universities throughout the country where military education and training will be given which, in connection with six weeks' field training each summer, will give a personnel for the officers' reserve corps that is far better equipped for the duties of an officer than any heretofore available.

In order to provide the enlisted men for the various technical staff corps and departments, an enlisted reserve corps has been authorized, which will consist of men whose daily occupation in civil life specially fits them for duty in the Engineer, Signal, and Quartermaster Corps, and in the Ordnance and Medical Departments. This enlisted reserve corps will provide the railway operatives, bridge builders, chauffeurs, hospital attendants, nurses, telegraphers, etc., required for the departments and corps mentioned. It is impracticable to keep in the Regular Army the number of men of these classes that will be necessary in time of war, and the enlisted reserve corps will provide for the deficiency.

HEALTH AND SANITATION.

In the health statistics of the Army the calendar year is used. During the past year the health of the Army was excellent. There were no epidemics or unusual occurrences of infectious diseases.

Typhoid fever.—There were throughout the year but eight cases of typhoid fever in the entire Army, none of which resulted in death. This record is the more remarkable when it is considered that during the 14 months from May 1, 1898, to June 30, 1899, covering the period of the Spanish-American War, there were 2,774 deaths from typhoid fever, and that this disease was alone responsible for more than one-half of the entire disease mortality in the Army. The experience in 1898 was made the basis of an investigation into the

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matter of infection and dissemination of the disease in military camps, and from that time until now the medical department of the Army has waged a ceaseless battle against typhoid fever, culminating in the adoption of antityphoid vaccination, the results of which are even more striking than those following the introduction of vaccination against smallpox. Indeed, the success of science in this contest constitutes one of the most interesting and brilliant chapters in the history of preventive medicine.

Malarial fevers.—Malarial fever, formerly one of the largest contributors to the noneffective rate in the service, showed in the year under examination the lowest rate in the history of the Army. The record in the Philippine Islands is especially creditable, but in general it may be said that with the growth of sanitary knowledge this disabling group of disease is being brought under control.

The rate for tuberculosis was 3.49 per cent per 1,000, the lowest in the record of the Army, and real progress was made in the control of venereal disease.

The general decline in alcoholism throughout the country is seen in the Army in a steadily diminished rate during the past 15 years, and, while both in the matter of venereal disease and excessive alcoholic indulgence we are making obvious progress, I am entirely clear that the working out of the educational and recreational programs suggested elsewhere in this report will have a tendency to accelerate our progress in the prevention and restriction of these troubles. Both are caused by personal indulgence. Personal indulgence is stimulated by unoccupied and uninteresting leisure, and both are resisted by that sort of sound body and mind which result from a life lived under normal and wholesome circumstances and filled with an interesting variety of work and refreshment.

The health statistics of the Army are especially interesting, in view of the fact that they cover about 100,000 men having a far extended field of action, distributed literally over two hemispheres, and therefore subject to epidemic contact and to the presence of contagion in foreign service, from which the civilian or nonmilitary population of the continental United States is more adequately protected by local sanitary safeguards.

Expedition into Mexico.—The expeditionary force which, in March, 1916, entered Mexico comprised troops of all branches, numbering approximately 10,000 men. During the several months of their stay these men have been under the most trying climatic and sanitary conditions, having to construct the sanitary appliances and facilities of their camps, and frequently being in stations where adequate water supply was difficult to secure. It is a matter of interest to note that the health of these troops is really remarkable. They have made plain their efficiency, and their noneffective rate has com-

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pared favorably with the best attained by home troops under garrison conditions.

The mobilization of the National Guard on the Mexican border presented to the medical staff of the Army a large and delicate problem. The men comprising these Guard regiments were drawn from all parts of the United States, from our great cities and from the rural districts, from high uplands and low valleys, from mountain and plain. They were transported at the height of the summer heat to the climate of southern Texas, to which few, if any, of them were in the least accustomed. They exchanged home life for crowded railroad trains and crowded railroad trains for hastily prepared camps. They underwent at once an immediate dietary change and as complete a change of habit and occupation. All of the facilities of the health service of the Army were at once devoted to sanitary and prophylactic measures for the safety of these men. The resources of the Department of Agriculture were generously and freely placed at the disposal of the War Department to aid in food examination and in the extermination of pests, which are nearly always the carriers of disease, with the astonishing result that the sick rate of the combined forces on the border since the mobilization has been less than 2 per cent. This is equivalent to a noneffective rate of 18 per 1,000. This I believe to be the lowest noneffective rate maintained in any similar body of men in our history, and I am told that it compares favorably with the best done by any country at any time. The credit therefor belongs primarily to commanding officers, the Surgeon General and Quartermaster General and their associates. They have, however, been intelligently aided by the medical officers of the National Guard, and of course have had the hearty cooperation and support of the War Department and the use of all the facilities of the other departments of the Government which could contribute to the accomplishment of their task. The result is not only gratifying in that it shows what progress we have made in sanitary science in the Army, but it has given the country confidence in the ability of the military authorities to safeguard the health of soldiers, and an assurance that the inevitable casualty list of military operations will not be supplemented by the horrors of preventable sickness and death, as was formerly the case before preventive medicine had so far wrought its saving service to mankind.

ADDITIONAL LEGISLATION ENACTED FOR PREPAREDNESS.

Increase in number of cadets at the United States Military Academy.—The enlargement of the Army provided by the National Defense Act clearly called for an increase in the number of trained officers available for service. Experience both in our own Army and abroad has shown that while longer and longer periods of training are

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necessary to fit the soldier for his task in modern war the most serious delay in preparation for a great national emergency arises in the training of officers, who must have not only the vigorous health and hardened bodies of the soldier but technical knowledge of those new and mechanical implements which have been devised and are being devised for use in warfare. The officer must have too the discipline of mind which can both obey and command, and this sort of discipline comes only with training and experience.

The art of war under modern conditions engages vastly larger bodies of men and a more complete coordination of all the national resources than was formerly the case. Success may depend upon rapidity of transportation both of men and supplies. The use of railroads and of motor transportation has taken the place of the old-fashioned marching and maneuvering, and under modern conditions a smaller number of men moved by carefully prepared transportation facilities is sometimes enabled to mass its strength so as to overcome disparity of numbers. As no army is stronger than its supply train the dependence of any military force upon properly coordinated and efficiently served transportation facilities is obvious. The implements of war have multiplied and we now have direct fire from the artillery, rifle fire from the infantry, and the cavalry reconnaissance and charge supplemented, if not replaced, by indirect artillery fire at vastly increased ranges, the high explosive shell, the machine gun, and the aeroplane. These added agents are the contributions of science to the art of war. They are scientific in their principles of construction and in their mode of use, and the whole art of war is as different from that practiced a few generations ago as the processes of higher mathematics are different from simple algebraic computations. The strength of the individual soldier has passed out of his arm and into his head, and as his art now depends upon intricate mechanical tools his skill must often be that of the trained mechanic and his knowledge that of the scientist. Especially are these higher requirements made of officers and the necessity for a longer period of training and for training of a finer kind is more and more apparent.

The United States Military Academy at West Point has almost from its origin ranked foremost among the military schools of the world. Its site is one of the most impressive in America, its equipment of buildings adequate, convenient, and inspiring in their beauty and suggestiveness. The officers educated there have made a body of men who from the beginning of the Republic have demonstrated the spirit of self-sacrifice for the preservation of the liberty of the country, and while many brilliant officers have come into the Army from civil life it remains true that the great body of officers needed in the Army have come from the Military Academy and in the future

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must be expected to secure their education and discipline there. As the art of war has grown more intricate special service schools have been established, in which young officers are gathered for courses, post-graduate in their nature, in the several arms of the service, and these schools deserve enlargement and encouragement at the hands of Congress. This, in my judgment, is especially true of the Engineer School for reasons to which I shall refer later, but the fundamental basis of the officers' education must for the greater part continue to be supplied at the Military Academy at West Point, and it is therefore fortunate that Congress, in the act approved May 4, 1916, has authorized an increase in the number of cadets and has made that increase in such fashion that it will fall gradually upon the teaching facilities of the academy and enable it to absorb its increased work without confusion or loss of quality.

For a number of years the department had urged Congress to make some provision that would afford a wider opportunity for desirable young men with a taste for militry life to secure appointments to West Point. It was pointed out that Congress had made large expenditures to build and equip this splendid educational institution, and that there was every reason why it should be operated and maintained at its maximum capacity.

By the terms of the act of May 4, 1916, the Corps of Cadets—

* * * shall hereafter consist of two for each congressional district, two from each Territory, four from the District of Columbia, two from natives of Porto Rico, four from each State at large, and eighty from the United States at large, twenty of whom shall be selected from among the honor graduates of educational institutions having officers of the Regular Army detailed as professors of military science and tactics under existing law or any law hereafter enacted for the detail of officers of the Regular Army to such institutions, and which institutions are designated as "honor schools" upon the determination of their relative standing at the last preceding annual inspection regularly made by the War Department. They shall be appointed by the President and shall, with the exception of the eighty appointed from the United States at large, be actual residents of the congressional or Territorial district, or of the District of Columbia, or of the Island of Porto Rico, or of the States, respectively, from which they purport to be appointed: *Provided*, That so much of the act of Congress approved March fourth, nineteen hundred and fifteen (Thirty-eighth Statutes at Large, page eleven hundred and twenty-eight), as provides for the admission of a successor to any cadet who shall have finished three years of his course at the academy be, and the same is hereby, repealed: *Provided further*, That the appointment of each member of the present Corps of Cadets is validated and confirmed.

SEC. 2. That the President is hereby authorized to appoint cadets to the United States Military Academy from among enlisted men in number as nearly equal as practicable of the Regular Army and the National Guard between the ages of nineteen and twenty-two years who have served as enlisted men not less than one year, to be selected under such regulations as the President may prescribe: *Provided*, That the total number so selected shall not exceed one hundred and eighty at any one time.

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SEC. 3. That, under such regulations as the President shall prescribe, the increase in the number of cadets provided for by this act shall be divided into four annual increments, which shall be as nearly equal as practicable and be equitably distributed among the sources from which appointments are authorized.

The total number of cadets authorized prior to the passage of the act of May 4, 1916, was 668. The new act authorizes an increase of 664, to be made in four annual increments, so that the number of cadets authorized for the first year is 834; second year, 1,000; third year, 1,166; and for the fourth year, 1,332.

On September 1, 1916, the beginning of the current academic year, there were 769 cadets on the rolls, including 4 Filipino cadets and 2 foreign cadets, 1 from China and 1 from Cuba. Those cadets were divided among the four classes as follows: First class, 141; second class, 156; third class, 147; and fourth class, 325.

The usual examination of candidates for admission to the Military Academy was held at various military posts, beginning March 21, 1916. An additional examination was held, beginning June 6, 1916, to fill the 102 vacancies that existed after the regular examination, and also to fill the vacancies (166) in the first annual increment of the increase in the Corps of Cadets provided for by the act above quoted. Inasmuch as it became apparent that not enough cadets to fill the vacancies in the first increment would be obtained from this examination, it was decided to hold still another examination (physical) on June 27, 1916, mental qualification being by certificate only. The total number of candidates designated for the three examinations was 1,228. Of that number, 202 failed to report for examination; 12 declined appointment, their appointments were canceled, or they were prevented by sickness from reporting; 515 were rejected upon mental or physical examination, or upon both; 109 failed to complete the mental or physical examination, or both; 1 was refused admission because of cribbing; and (at the June 27 examination) 2 qualified physically and failed to submit educational certificates. There were no vacancies for 58 alternates and 5 candidates at large who qualified. The remaining 324 candidates were found qualified and were admitted to the academy. After the examination of June 27 there were 26 vacancies in the first increment.

The number of cadets authorized for 1916 is 834. There being 767 cadets on the rolls (excluding the 2 foreign cadets) on September 1, 1916, there was a total of 67 vacancies on that date. That number has been increased by resignations and death, so that the number of vacancies now is 77.

The training of citizens; Reserve Officers' Training Corps.—In addition to the provision made for an enlargement of the student body at the Military Academy, the country has witnessed a rapid development of interest in citizen training. The reorganization

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and federalization of the militia, provided by the National-Defense Act, is in part a response to this impulse, but several interesting and promising experiments of a more novel kind are in progress. First of these is the establishment and maintenance at various educational institutions throughout the country of a reserve officers' training corps. By this means it is hoped to utilize the facilities of public and private educational institutions to give instruction to large bodies of students in the elements of military science and tactics. Officers of the Army are detailed to these institutions as professors. In 1915, 5,200 students who had completed courses of training under the supervision of officers were graduated from colleges, while the total number of students in colleges who had received some military instruction in that year under officers of the Army was 32,000. The total enrollment of male students in colleges to which this sort of instruction may be applied is about 170,000. By an enlargement and development of the plan it is hoped that a substantial portion of these students may be given the benefit of military instruction. An association of collegiate authorities for the consideration of this subject is working actively in harmony with the War Department and with the aid of the War College Division of the General Staff studies have been made which it is hoped will make this training increasingly acceptable and useful. Indeed, it may fairly be said that among the best educators of the country, the disciplinary value of elementary military instruction is coming to be realized and appreciated, and, without at all transforming our institutions of higher learning into military establishments, the spirit of order and devotion to the service of the country, which is the normal result of military discipline, is being inculcated into an increasing number of young men with results beneficial alike to the student body and to the institutions and with very promising results in the matter of preparedness against any emergency which may arise.

Vocational training in the Army.—This is a subject to which serious attention has been given, but its possibilities are only beginning to be developed. The primary purpose of the soldier when not in active operations is, of course, preparation for active operations; but armies are made of young men, in a large number of cases a single enlistment only is served, and these young men with strong and vigorous bodies return to the commercial and industrial life of the Nation often to find themselves at a disadvantage in securing industrial or commercial employment, because other young men of their age have spent years in apprenticeship and are therefore more available and better trained. The Army posts of the Nation can not be suddenly converted into schools. So far a system of voluntary educational opportunity has been offered. In some posts sub-

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stantial progress has been made, and the opportunity for progress is particularly present in the stations of the Coast Artillery, where the garrisons are more permanent than are the organizations of the mobile army.

The recent National-Defense Act provides on this subject:

In addition to military training soldiers while in the active service shall hereafter be given the opportunity to study and receive instruction upon educational lines of such character as to increase their military efficiency and enable them to return to civil life better equipped for industrial, commercial, and general business occupations. Civilian teachers may be employed to aid the Army officers in giving such instruction, and part of this instruction may consist of vocational education either in agriculture or the mechanic arts. The Secretary of War, with the approval of the President, shall prescribe rules and regulations for conducting the instruction herein provided for, and the Secretary of War shall have the power at all times to suspend, increase, or decrease the amount of such instruction offered as may in his judgment be consistent with the requirements of military instruction and service of the soldiers.

Under this provision consistent plans can be made, and highly beneficial results should follow.

Undoubtedly we shall come to a mode of Army life, which, while doing full justice to military drill and to that physical training so necessary to give the soldier a robust endurance of physical hardship, will at the same time afford him an opportunity to acquire mental training and manual skill, and at the same time round out his life with wholesome recreations and diversions, so that membership in the military forces of the Nation will have added to its patriotic usefulness a compensating opportunity for growth to the soldier and preparation for him which will make his nonmilitary years useful and happy.

Training camps.—Something over three years ago Maj. Gen. Leonard Wood, then Chief of Staff, put into operation a plan for camps of instruction at which students were permitted to attend for training without cost to the United States. The plan was later enlarged to permit the attendance of business men and has been carried forward year by year with increasing success and interest. During the present year the need for the Regular Army on the Mexican border has deprived these training camps of some of the officers and troops which would have been desirable as aids in the instruction and organization of the work; but in spite of this difficulty, five camps were held at Plattsburg, two at Oglethorpe, one at Fort Terry, six at Fort Wadsworth, in the Eastern Department, with a total attendance of 12,200 men and boys. In the Western Department camps were established at the Presidio and at American Lake. A satisfactory camp was held at San Antonio, Tex.; and in view of the recognition of this mode of training by Congress, it is safe to assume that much greater usefulness can be predicted for them in subsequent years, and that

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the field of selection of those applying to attend will be greatly enlarged by reason of the provision made for the payment of transportation and subsistence by the Federal Government for those who attend.

Council of National Defense.—The challenge of the European war brought the attention of Congress not merely to the necessity for an increase in the personnel of the Regular Army, provision for a larger supply of officers, and a better organization of the National Guard, but also to the fact that in any great national military emergency industrial mobilization was an indispensable element to success. Legislation was therefore enacted looking to an investigation of the financial, industrial, and commercial resources of the Nation and such prevision of them as would enable them to be speedily mobilized for the national defense. The most conspicuous step in this program was the creation of the Council of National Defense, consisting of the Secretaries of War, the Navy, the Interior, Agriculture, Commerce, and Labor, under whom, and upon whose nomination, the President is authorized to appoint an advisory commission of seven citizens qualified by the possession of special knowledge of the industrial and commercial resources of the country, and to this Council of National Defense, advised by the advisory commission, is committed the task of coordinating the military, industrial, and commercial resources of the Nation in connection with its defense. Its duties are set forth in the act as follows:

> It shall be the duty of the Council of National Defense to supervise and direct investigations and make recommendations to the President and the heads of executive departments as to the location of railroads with reference to the frontier of the United States, so as to render possible expeditious concentration of troops and supplies to points of defense; the coordination of military, industrial, and commercial purposes in the location of extensive highways and branch lines of railroad; the utilization of waterways; the mobilization of military and naval resources for defense; the increase of domestic production of articles and materials essential to the support of armies and of the people during the interruption of foreign commerce; the development of seagoing transportation; data as to amounts, location, methods, and means of production and availability of military supplies; the giving of information to producers and manufacturers as to the class of supplies needed by the military and other services of the Government, the requirements relating thereto, and the creation of relations which will render possible in time of need the immediate concentration and utilization of the resources of the Nation.

Power is given to the council to select a director who will be the executive officer, and an adequate appropriation is made for the employment of expert and clerical help, so that there will be established in Washington as an agency of the Government a central body which will catalogue the resources of the Nation and create such relations between our industrial and commercial agencies as will equip them

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to respond instantly to any call from the Government. In this way, the problems which in some countries had to be faced unforeseen until after a national emergency had arisen will be anticipated in the United States, and the confusion, delay, and loss due to haste in a moment of national danger will be obviated by rational, just, and timely provisions made in advance of trouble. It may well be that some part of the work of the council having a purely military usefulness will not be needed, but the general effect of such a plan in operation will be to produce more healthful and harmonious relations between the Government and business, and to give to the great industrial and commercial enterprises of the country a national and patriotic aspect, which will both keep the country prepared, should emergency arise, and stimulate sound business and industrial methods throughout the country. The Council of National Defense is authorized to create commissions, subordinate to the advisory commission, for the study of special problems. Thus many committees of inquiry of a technical and scientific character, casually created heretofore for the consideration of special problems, will be able to be coordinated under the general direction of the council, and duplication of work and conflict of jurisdiction avoided. The act provides for reports to be made through the council to the President, and from the President to Congress, so that a great body of valuable and healthful information will undoubtedly result.

Progress in aviation.—Congress has recognized the great importance of aviation to the United States Army and has made this recognition effective by increasing the appropriations of the last fiscal year from $300,000 to more than $14,000,000 for the fiscal year ending June 30, 1917. It has enlarged the aviation personnel by increasing the commissioned force from 60 officers to 77 for the year 1917 and the enlisted men from 260 to 1,800. In addition, there have been provided for aviation, an officers' reserve corps and an enlisted reserve corps.

The project for the development of the aviation section contemplates 7 aero squadrons for the Regular Army, 12 squadrons for the National Guard divisions, and 5 for the defenses on both coasts besides aerostatic units for the mobile Army and Coast Artillery. The personnel for these will be made up from officers and enlisted men of the Regular Army, of the Reserve Corps, and of the National Guard units.

On May 20, 1916, Lieut. Col. George O. Squier, Signal Corps, assumed command of the aviation section. Since that date the general plan of administration has been to incorporate in the design and construction of equipment and in the system of training military aviators, lessons gained by experience in the present European war and in our own actual field experience in Mexico and elsewhere.

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The problem of organization of the Army air service has been studied with a view to establishing a sound base which will lend itself to future expansion into an efficient service.

A thorough study of the aeroplane industry has been made by a technical board of officers and civilian engineers, to learn the productive capacity of the manufacturers in the United States. This was to insure that the War Department might obtain the best equipment available and also to improve and develop the general design of aeroplanes of various necessary military types. In this latter connection the department has published specifications for the different types of military aeroplanes, endeavoring to incorporate in these specifications the requirements from the military standpoint and those lessons in design and construction learned from actual field experience.

Endeavor has been made toward the development of equipment for our military air service to meet conditions which are very similar to those that obtain in the European war and those peculiar to this country. Every effort has been made to improve power plants for aeroplanes. Bombs, bomb-dropping sights, special cameras, mounts for machine guns, automatic controlling devices, instruments for navigation, and for aid to the pilot, and many other accessories have been developed. A radio set has been developed which has transmitted messages across 140 miles.

In all this development the policy has been to endeavor to obtain assistance from the greatest civilian specialists in the country. Material assistance has been received from the National Advisory Committee for Aeronautics, the Bureau of Standards, and the American Society of Automobile Engineers, all of which have displayed a degree of interest which is extremely encouraging.

Orders have been placed (or proposals solicited) to date for military aeroplanes as follows:

Two-plane reconnoissance biplanes	91
Advance training aeroplanes	120
Primary training aeroplanes	34
One-plane pursuit aeroplanes	13
Two-plane reconnoissance hydroaeroplanes	155
Two-plane land combat aeroplanes	6
Total	419

Five captive balloons for field artillery fire control have been ordered.

Specially designed portable weatherproof hangars, machine shops, special trucks, and portable machine tools have been purchased, or ordered.

Schools conducted by competent personnel have been established at Mineola, Long Island, near New York City, and at Chicago, Ill.,

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in addition to that already established and in operation at San Diego, Cal. A base for equipping land squadrons and instructing in advanced military aviation has been established at San Antonio, Tex.

As a result of the training at these schools, the following have qualified since May 20, 1916, as junior military aviators:

At San Diego, Cal., officers of the Regular Army	22
At Mineola, Long Island, N. Y., officer of the National Guard of New York	1
Total	23

The following have qualified as reserve military aviators:

At Mineolo, Long Island, N. Y.:	
Officers of the National Guard	3
Civilians	4
Total	7

In addition, the following students are at present under instruction:

At San Diego, Cal., officers of the Regular Army	38
At Mineola, Long Island, N. Y., officers of the National Guard	16
At Chicago, Ill.:	
Officer of the National Guard	1
Civilians	7
Total	62

The nucleus of a division to operate lighter-than-air craft has been established.

Procurement of military supplies.—Under the former law the Federal Government in time of war would have to enter the markets of the country to obtain ammunition, arms, and other supplies just as an individual would, but the new law authorizes the President in time of war to exercise a power analogous to that of eminent domain over the various manufacturing plants in the country and gives Government orders precedence over all private orders. Authority is also given to the Ordnance Department to prepare, in time of peace, the necessary gauges, jigs, dies, and other special tools required in the manufacture of arms and ammunition, and to give to specially equipped manufacturers educational orders which while limited in amount will insure private manufacturers having the necessary experience and force to enter rapidly upon the manufacture of munitions in the event of necessity. Congress authorized the appointment of a board to study and report to Congress upon the advisability of exclusive Government manufacture of war materials. This board has been appointed and is proceeding with its investigation. No forecast can as yet be given of the conclusions, but the subject is one of very great importance. There are in the United States at the present time a great many industrial establishments which have turned aside from their ordi-

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nary business to the manufacture of war materials, and large plants have been established for this special object.

After the passage of the occasion for which these enterprises were established the difficulty will arise as to whether their facilities are to be transformed and devoted to other industrial uses or any part of them preserved in readiness for similar supplies for the United States. Some of these plants are located on the seacoast and others at more remote places. It will therefore be incumbent upon the department to select for patronage and encouragement certain of them, and in determining which are to be so chosen a variety of military considerations arise. It would seem, however, that with such facilities in existence it will be unwise to allow them to be dismantled, and the necessary large additions made to existing Government facilities which would be required to equip the Government to supply its own needs under war conditions, and as any war condition requires a mobilization of the entire industrial resources of the Nation there would seem to be no reason why munitions of war should be separated out for Government monopoly, unless that course should turn out to be necessary to prevent the appearance of prospective war profits as a disturbing element in the policy of the Nation.

Nitrate plant.—The National-Defense Act appropriates $20,000,000 for the establishment of a nitrate plant. The manufacture of powder depends upon nitric acid, and the supply of nitric acid is in a large part based upon importations of Chile saltpeter. European Governments finding their supply of nitric acid from a similar source interrupted have resorted to the fixation of atmospheric nitrogen. As there is no adequate body of natural nitrate to be found among the mineral resources of the United States, Congress wisely provided for the establishment of a plant or plants upon which the United States could rely as an alternative to the foreign source which at present is the basis of all powder manufacturing in the country. Immediately after the making of the appropriation the department began a study of the subject. It seems entirely clear that Congress in making the appropriation had two objects in view. The primary one was, of course, the establishment of an adequate and independent source of nitric acid for war purposes, but as any such facilities would in the normal course of events be unnecessary the greater part of the time, and as nitric acid is the basis of commercial fertilizer, the secondary object clearly was the establishment of such a plant as in peace times could enlarge the available supply of fertilizer for use on American farms. The correlation of these two objects and the various processes by which synthetic nitrates can be produced imposed upon the department, first, the solution of a scientific inquiry, and the National Academy of Sciences was called upon for assistance in reaching a

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proper conclusion as to the best method so far devised for the manufacture of nitric acid. The National Academy has associated with it the American Chemical Society, and a committee appointed from the membership of both bodies has made and reported upon a preliminary inquiry, and is now conducting some practical experiments as the basis of a further and final report. Active and efficient assistance has been given to the department by the Bureau of Mines and the Department of the Interior. As yet no determination has been reached.

In brief, the character of the problem may be indicated by saying that there are four principal possible sources of nitrogen supply or methods for its development: First, Chile saltpeter, which, of course, is a foreign supply and subject to interruption; second, the recovery of nitrogen from the ammonia liquor of the by-product coke ovens; third, the fixation of atmospheric nitrogen by the cyanamid process; fourth, the fixation of atmospheric nitrogen by the arc process. In advance of the report of the scientific bodies which are studying the question it would be unwise to enter into any elaborate discussion of the relative merits of these sources or processes. It may not be improper, however, to say a word with regard to each of them. The Chilean nitrate, at present the main reliance, being a foreign supply, was obviously deemed by Congress not sufficiently reliable, and therefore the appropriation was made. The recovery of nitrates from the by-product coke ovens, while a simple laboratory process, has certain scientific limitations due to the difficulty of purifying the ammonia liquor by any processes yet devised, and the additional limitation that an invasion of this field would probably not greatly increase the available stock of fertilizers in peace times, because it would not increase the actual nitrogen supply of the country but would merely divert a part of it, or all of it, at certain times into war materials. Of course, if the Government were to adopt this source, it would lead to a large increase in the by-product oven method of coking, and in that way the fertilizer supply would be augmented. The cyanamid process, which undoubtedly is the most useful from the point of view of fertilizer product, depends upon a large supply of electrical power and the proximity of certain mineral and shale bodies for its economic success. The arc process, which likewise depends upon the presence of a large supply of electrical power, is independent of mineral resources, but is less valuable in peace times as a source of fertilizer production.

We thus see that if either of the electrical processes are resorted to it will be necessary to select a site or sites for the production of hydroelectric power, and this selection will have to be made with a view to the accessibility of mineral elements needed for association in the peace and war time products of the plant, and the selection will also

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have to consider the location of the site with a view to its defense in the event of war and the readiness and economy with which its products can be distributed in war times to the military forces of the Nation and in peace times to the farming community which can be expected to use the fertilizer product. The subject is thus seen to be one of intricacy, and, while the solution of the questions presented has not yet been made, the studies being made are of such character as to insure a scientific treatment of the question and a careful and effective use of the funds appropriated by Congress for this important object.

Examinations for promotion.—As early as October 1, 1890, Mr. Redfield Proctor, Secretary of War, advocated in his annual report and secured the enactment of a measure providing a system of examination for all officers of the Army below the rank of major and making the right to promotion conditional thereon. The theory which has long obtained in the Army, of promotion by seniority, was not disturbed except that the requirement of a successful examination was made an additional condition precedent, the examinations not being competitive but qualifying. The law did not seem to work well, although its theory met with the approval of the War Department, and constant efforts were made both to broaden its scope and increase the efficiency of its operation. My immediate predecessor, Secretary of War Garrison, in his annual report for 1913, drew the analogy between the practice of industrial concerns and the Army, suggesting the tendency of mere seniority promotion to cause a lack of initiative and study on the part of officers. He very justly observed that there is a surprising amount of ambition and initiative in the Army, but that it is largely self-generated and receives very little stimulation from the promotion system. As a matter of fact, we see the same condition in civil life—young men of great ingenuity and devotion who are attending the postgraduate courses in our universities and are ordinarily required to do a piece of original research work as the basis of their pretensions to the degree of doctor of philosophy. They are filled with research zeal. When, however, they are through with their university course and undertake the daily grind of teaching in academic institutions, their separation from the inspiring university atmosphere and from daily association with others engaged in original work tends gradually to lull the impulse to investigation, and the task of original research is passed along to their successors at the universities, while they become drill masters, disciplinarians, and teachers, but not contributors to the original thought of their science.

The life of the Army officer when he is at the War College or in one of the service schools where military matters are the daily concern of a large number of brilliant men is full of that inspiration

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which maintains interest in the latest developments of military science. But as officers scatter to outlying Army posts, sometimes in the Tropics and sometimes in remote sections of the continental United States, the officer soon feels the loss of contact with other investigating minds, and if mere seniority is to continue to secure an orderly promotion for him which can neither be accelerated by his effort nor retarded by his inactivity, a substantial encouragement to development is lost. In response to considerations of this sort the act of June 3, 1916, extended the provisions of previous laws requiring examination to determine fitness of officers for promotion so as to include examination for promotion to all grades below that of brigadier general. Under the operations of this law there will be constantly before the mind of the officer the necessity of keeping himself abreast of the developments in military matters and of not allowing his general education to stagnate or be lost in a dull routine of disciplinary observances. The law ought not to be harshly employed, but in the normal development of its operation eliminations will take place of officers who have lost interest in their career and in the development of military science, and a certain minimum of growth will become a fixed requirement as officers advance in the service to positions of larger responsibility.

Revision of the Articles of War.—From the point of view of the daily discipline and control of the Army, perhaps no step in recent years has been more helpful than the revision of the Articles of War, enacted into law as a part of the Army appropriation act approved August 29, 1916. For many years the Army has felt that the Articles of War needed revision. Many of these articles have remained unchanged for a century, while new theories of discipline have been current in all the civilized countries of the world, and in our own country profound modifications have taken place in the administration of both civil and criminal law. The extension of the field of operations of the Army of the United States beyond our continental borders and other changes in the domestic and international situation of the United States have presented conditions which the old articles were not adapted to meet. The revision of the articles, therefore, was most needed, and the work of the Judge Advocate General in preparing the revised articles is a singularly able piece of work, introducing needed reforms, and throughout characterized by moderation and a conservative attitude toward an established and well-understood disciplinary system.

Revision of military laws.—The act of August 29, 1916, further directs a revision and codification of all the military laws of the country. This is a large and difficult task and yet one very necessary to be performed. For many years Congress has enacted a great variety of laws, some of them directly military in character and others touch-

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ing the Military Establishment only at a tangent, so that scattered through the statutes is a lot of piecemeal legislation requiring the most expert and trained knowledge for its use. It will be a great advance in the conduct of the Military Establishment to have all of these laws brought together, placed in their true relation to one another, their accidental conflicts eliminated, and a consistent and plain body of laws erected for the guidance of those who come within the scope and operation of our so-called military laws. It is my hope that this code can be submitted to Congress at an early day, and while the Congress will undoubtedly find it necessary carefully to examine the work before giving its approval, it will be presented in a form which will show that the effort has been to omit obsolete and redundant matter without substantially changing the effect of existing law except in such obvious cases as will appeal at once to the lawmaking body.

MILITARY TRAINING IN HIGH SCHOOLS.

The statement made by the War College Division of the General Staff entitled "A Statement of a Proper Military Policy for the United States," gave us some idea of the size of an army which would be needed in this country in the event of any serious emergency. As one contribution to the preparation of the necessary number of men, a proper system of training for high schools was developed by Capt. E. Z. Steever and applied with marked success in the public high schools of the State of Wyoming. The Steever plan has come to be known as the "Wyoming plan." It has been extensively written up in periodicals of general circulation and interest, and requests come almost daily to the War Department for the services of Capt. Steever to introduce the system into the public secondary schools. The plan embraces the preparation of a high-school boy in military, moral, civic, business, and educational equipment, and its fundamental basis rests upon the natural evolution of leadership among boys and the value of organization and coordination in groups of young men. The system can not be said to compete with recognized athletic diversions, but it offers opportunities for larger masses and spreads its benefit in the physical training over wider areas than is possible under the intensive form which modern athletics has taken. The entire enlistment is voluntary and the exercises are carefully adjusted so as not to compete or interfere with the normal academic work of the school. The exercises are only in part directly military and are designed to stimulate the interest of all normal and healthy boys, thus affording an invitation to those who are not normally the most fit physically to develop vigorous, sturdy bodies, with clean minds and ordered and disciplined habits.

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There is just enough of a soldier aspect to teach constantly the lesson of the obligation of the citizen to serve the State in a crisis, and under the wise restraints which have been introduced into the system even the most devoted adherents of peaceful policies for our Government have not felt that there was any danger of the development of a militarist attitude in the student body.

GENERAL STAFF CORPS.

Duties and functions as prescribed by National-Defense Act.—The act for making further and more effectual provision for the national defense, and other purposes, approved June 3, 1916, provided many enlargements and changes in the Army. A large part of the discussion in Congress and of the illustrative and preparatory work in the War Department had been done prior to my assumption of the duties of Secretary of War. Some questions as to the results of this act, however, and of the intention of Congress in passing it arose for almost immediate consideration and required a careful historical study of Army legislation covering a long period of years. None of these questions was more important or difficult than that affecting the organization of the General Staff and the relation of the Chief of Staff alike to the Secretary and the Army.

For many years the superior military authority in the Army was vested in the Commanding General of the Army. The embarrassments attending the somewhat uncertain duties of that officer and the growth of the principal staff organizations in the armies of other countries sharply directed the attention of various Secretaries of War to the need of a reorganization, and the first step in that direction was taken by the creation of the Army War College Board, which Secretary Root described to be as near an approach to the establishment of the General Staff as was practicable under the law existing in 1899. In 1901 Secretary Root, in his report, formally urged the establishment by law of the General Staff, of which the War College Board should form a part. In his annual report for 1902 Secretary Root again urged his recommendation, saying:

> Our military system is, however, still exceedingly defective at the top. We have a personnel unsurpassed anywhere. * * * We have the different branches of the military service well organized, each within itself for the performance of its duty; our administrative staff and supply departments have at their heads good and competent men, faithful to their duty, each attending assiduously to the business of his department; but when we come to the coordination and direction of all these means and agencies of warfare, so that all parts of the machine shall work true together, we are weak. Our system makes no adequate provision for the directing brain which every army must have to work successfully. Common experience has shown that this can not be furnished by any single man without assistants, and that it requires a

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body of officers working together with the direction of a chief, and entirely separate from the Army. * * * This body of officers in distinction from the administrative staff has come to be called a general staff.

The subject thus presented was very fully and earnestly considered by the Military Committees of the two Houses, and resulted in the passage of the act of February 14, 1903, which abolished the separate office of Commanding General of the Army, provided for a military Chief of Staff, who, under the direction of the President or of the Secretary of War, representing him, should have supervision not only of all troops of the line, but of the special staff and supply departments, which theretofore had reported directly to the Secretary of War, and it created for the assistance of the Chief of Staff a corps of 44 officers who were relieved from all other duties. The inauguration of this system was a complete and fundamental change in the administration of the War Department. It was not unnaturally attended by some misunderstanding and difficulties, growing out of the transfer of authority and independence from a series of uncoordinated administrative staff officers into a harmonized and coordinated body under the supervision and control of a single military officer. The embarrassing question constantly presented itself as to just how far the functions of the Chief of Staff invaded the administrative independence of various bureau chiefs, and, while the question was always considered in a fair and tolerant spirit, it sometimes became the basis of anxious controversy, if not misunderstanding.

In the act of June 3, 1916, and particularly in section 5 of that act, some language was introduced by Congress apparently for the purpose of setting at rest some of this misunderstanding. Unhappily, however, doubt immediately arose as to the scope, effect, and intention of the language so employed. One possible view of its meaning would have in effect limited the Chief of the General Staff and his associates to the consideration of more or less abstract questions of military policy and would have deprived him of that basis of knowledge necessary for the performance of any coordinating function. In effect, this would have been a return to the old system of more or less independent bureau organizations reporting to and dealing directly with the Secretary of War and coordinated only to the extent that his personal information enabled him to effect such a result. It would, of course, have left the Chief of Staff and the General Staff in existence, but would have limited their functions practically to the work originally undertaken by the War College Board, and later by the War College Division of the General Staff. Since Congress had apparently addressed its attention to this subject and had used some new language, it became important very earnestly to inquire just what the legislation intended to accomplish

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and how far the interpretation above suggested as possible was necessitated by the language used.

As this question is one of far-reaching importance, I take the liberty of attaching to this report as Appendix A the decision of the Secretary of War[1] on the effect of section 5 of the National-Defense Act, in which the subject is examined with critical care and the conclusion reached that—

> The structure [General Staff] erected by the act of 1903 remains as then created, except for the explicit modifications provided in the act of 1916.

And—

> That the Chief of the General Staff is charged with the supervision of the various departments, bureaus, and offices of the War Department for the purpose of coordinating their activities and for the purpose of so informing the judgment of the Secretary of War that he may not by inadvertence or unfamiliarity with military practice take action which would be prejudicial to harmonious results in the military service.

This conclusion was reached by a study of the language actually used, which, after all, was merely a prohibition upon the officers detailed into the General Staff Corps from the performance of administrative duties and was in no expressed sense a repeal of any of the earlier legislation which subjected the administrative staff officers to the supervising, coordinating, and informing powers reposed in the members of the General Staff Corps by the act of 1903. It seemed entirely clear to me that had the Congress intended a larger effect for its language it would not have been content to leave that effect to inference and expanded definitions of terms ordinarily having much more limited meaning. The result of all the legislation, therefore, including the provisions of the act of June 3, 1916, dealing with this subject seemed to me to be that Congress has adhered to the policy inaugurated in 1903, that it continues to recognize the wisdom of a General Staff in the American Army, and that not a staff for the academic consideration of theoretical problems, but such a staff as can, on the basis of intimate acquaintance with both the War Department bureaus and the Army at large, act as a coordinating and reconciling agency. The considerations which moved Congress to the passage of the act of 1903 were of the weightiest character. Foreign experience, which was then considered determinative of proper military policy in this regard, has since that time become more conclusively persuasive in the same direction, and I am clear that any abandonment of the theory of the General Staff, or any diminution of the coordinating power of the Chief of the General Staff, would be a backward step and would scatter the military energies of our

[1] The able opinion of the Judge Advocate General on this question is attached as a part of Appendix A, so that the perplexity of the question from both points of view may be seen.

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Army, which are now so happily concentrated and coordinated. It is proper to be remembered in this connection that the Chief of the General Staff bears a more personal relation to the Secretary of War and, through him, to the President than is borne by any other officer in the Army. The occupant of the office changes at the will of the Secretary of War, and in order that the policy of the President may be aptly and sympathetically impressed upon the military establishment, it seems imperative that there should be continued in the Chief of Staff the largest power of supervision and that he should be enabled to keep constantly informed, even in detail, as to the operations of the various subdivisions of the military activities of the department, so that the Secretary of War may rely upon him in an immediate and personal sense for advice which is based upon a view of the whole Army rather than upon the advice, however frank and disinterested, of individuals whose chief interests are associated with subdivisions of, or specialties in, the service.

Having reached a definite opinion as to the intention of Congress, I have directed obedience to that intention by a continuation of the policy established immediately upon the passage of the act of 1903, and this result, I am confident, will be regarded by the Army as conducive to its growth in efficiency and to the establishment of harmonious and just relations between the various elements of the service.

Number of officers required.—At the time of the creation of the General Staff Corps the number of officers at first detailed thereto was fixed at 45 as the proper number to perform this new and somewhat experimental duty. In 1912 the General Staff was reduced by one general officer and eight captains. The reduction so seriously interfered with the work of the General Staff as to cause a special emphasis to be laid by the department in its recommendations to Congress on the subject. Having an intimate knowledge of the increase and development of its own functions and possibilities of usefulness, the General Staff recommended 94 as the number that should compose that body. The new National-Defense Act as passed by the Senate fixed the number at 92, but when the bill emerged from conference, the General Staff, aside from its general officers, was increased by 18 officers only, and they were to come, like the other increases authorized for the Army, in five annual increments. And the National-Defense Act further provided that not more than one-half of the officers detailed in the General Staff Corps shall at any time be stationed or assigned to or employed upon any duty in or near the District of Columbia. It seems quite clear that the law as thus enacted leaves the General Staff Corps insufficiently provided for, so far as numbers are concerned, and the department is embarrassed in the selection of suitable officers for this most important

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duty, both by the restriction prohibiting the assignment to duty in or near Washington of more than one-half of the corps and also by the detached-service law and other restrictions which limit choice. The detached-service law was a part of the appropriation act for the Army approved August 24, 1912, and requires that commissioned officers of the line of the Army below the rank of major shall not be detached unless they have been actually present for duty for at least two of the last preceding six years with troops of that branch of the service in which the officer in question is commissioned.

With the purpose of this law I have complete sympathy, in that it is an effort to require the return of officers to service with troops at such frequent intervals as to assure knowledge of troop conditions and line service in those who are from time to time detached for special and expert work. It seems to be a very safe generalization that all officers of the Army, with the possible exception of a very few performing highly specialized service, ought to be returned to service with troops from time to time, so that their details, or periods of detachment, will be refreshed by knowledge of actual army conditions. But I doubt the wisdom of allowing this principle to limit the choice of the department in the selection of officers for the General Staff. The duties of that body are of such paramount importance to the success of the whole military establishment that the War Department ought to be free from any arbitrary restriction in reaching out into the service at any time for the man or men best qualified to perform this central and pivotal function.

A board of officers was recently constituted in the War Department to recommend for selection the necessary number of officers to fill vacancies in the General Staff. The board reports that it—

> was seriously handicapped by the fact that many of the officers whom it considered eminently fit were either on the detached officers' list, on duty in the Philippines with a considerable period to serve, or were within one year of their promotion, or detailed in other staff departments.

Undoubtedly the difficulty here sought to be solved by Congress is a real one. Washington, being the Capital and the seat of the War Department, is a desirable place of residence for officers of the Army, and, where personal preference is allowed to control, undoubtedly the tendency will be, for one reason or another, to allow too large a number of officers in Washington, at the expense of an adequate officering of outlying posts. It would seem, however, that, in view of the firmly established theory and practice of the dominance of the Chief of the General Staff and his supervision over and coordination of all the various branches of the military establishment, the power might safely be left to the Secretary of War to set aside in individual cases restrictions of this kind in the interest of the most efficient organization of the General Staff Corps. Incidentally it may be remarked

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that these restrictive provisions impose upon the Government a very substantial increase in the expense of the military establishment, requiring, as they do, arbitrarily, frequent changes in the assignment of officers, and their transportation from place to place.

SCIENTIFIC MANAGEMENT.

The supplies of the Army are in part purchased in the open market and under contract and in part manufactured in Government arsenals. The question of the relation between the Government as employer and its employees in these arsenals is a part of the general labor question of the country. The theory which the department attempts to follow is, in general terms, that the Government should be the model employer, and to a large extent this theory is successfully applied. In the matter of hours of labor, sanitary conditions, holidays, and sick leave there is perhaps no better industrial condition in the United States than that maintained by the War Department in these industrial plants. The question of wages and the basis of wages is, however, under more or less constant discussion. Roughly speaking, the department undertakes to establish wage rates by determination of the prevailing rate of wages in similar employments within the district in which the particular arsenal is located, and it uses Bureau of Labor statistics of the Department of Labor in selecting the territory which shall comprise the district and in determining rates of wages for similar work. The result is that the employees of the Government receive the prevailing rate of wage in their respective occupations, but usually for a day of shorter hours than is observed in the private industries from which the information is drawn, and clearly for work done under conditions much more favorable to the public employee than to the private employee. The difficulty in this whole matter, however, arises from the use of more or less arbitrary methods for piecework and day wage determination. Many efforts have been made to introduce just principles into this delicate determination. A system of time studies and premiums known as the "Taylor system" was adopted in part in some of the arsenals, but it met with the opposition of organized labor and Congress prohibited the use of the system. We have been obliged, therefore, to fall back upon the less scientific and less just methods previously employed.

It seems without doubt that an efficiency system properly constructed and justly applied is fairer alike to the Government and to the employee than any more haphazard method. The objection of organized labor is not unnatural; it proceeds from the belief that all efficiency systems tend to become "speeding-up" systems and that their logical operation increases the output without a corresponding increase of wage. This, however, must, of course, be due to the

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method of applying the system rather than to the system itself, and after examining the results obtained in Government arsenals where the system was in whole or in part followed, I am persuaded that no such evil effects as these were permitted to occur. How far the action of Congress was dictated by a belief that efficiency systems inevitably tended to the enervation of the employee I have not the means of knowing, nor do I know what evidences of such results in private establishments were considered, but under the law as it now is the department is prohibited from using time studies and premiums, and is therefore deprived of the means of acquiring the sort of knowledge without which just wage regulation is impossible, or of offering inducements to zeal and good workmanship, which if offered in moderation constitute a just recognition of individual skill and energy. My own belief is that most of the difficulties which have been felt to inhere in efficiency systems arise from the fact that they are employers' systems and that the employee has no voice nor part either in the making or application of the systems. We are unhappily prevented by existing legislation from any experiments. Were it otherwise I would be much interested to discover, if possible, a plan by which the Government and its employees might cooperate in the devising and application of methods fair to both for the determination of relative skill and zeal among operatives, which would at the same time protect the interests of the Government as employer, and while conserving the strength and energy of the employees distribute justly among them the rewards of faithful service.

SUGGESTED LEGISLATION.

Engineer School.—I have referred above to the special-service schools already established in the Army to supplement with post-graduate courses the fundamental training given to officers at West Point. The Army War College is, of course, one of these and devotes its teaching force to the study of the principles of strategy and military policy. The service schools seek to specialize in their particular branches of the service, and the rapidity with which new implements of war are developing and their highly scientific character make it increasingly important that special study should be given to such subjects as precision in indirect Artillery fire, the use of the machine gun, the modern uses of Cavalry and military aviation. To one of these schools, however, I desire to ask particular attention. The Engineer Corps of the Army for many years comprised a large part of the most eminent engineering talent in the country. Its officers are still men of great distinction and ability, but the science of engineering in its various aspects has become fundamental to the entire industrial life of the Nation. The civil, electrical, mechanical, and chemical engineer is to be found in every

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great industry, and the rewards offered in civil life to the engineer are now attractive in the highest degree. It is very necessary that the Army should be continuously supplied with well-trained engineers.

The peace-time occupations of the War Department and of the Army rest in a high degree upon the Engineer force, and the great problems of river and harbor improvement and development for the promotion of navigation and for the conservation of the water power of the country are in the hands of that corps. Of course, in war the engineer, as bridge builder, road maker, builder of fortifications, and a variety of other construction enterprises, is essential to military success. But the science of engineering, like all other sciences nowadays, is rapidly developing. Every new application of scientific principles to industry affects the engineer, and it is of the highest importance that the Engineer Corps of the Army should continue to contain a progressive, highly trained body of men thoroughly abreast of all the developments in science applicable alike to those engineering functions of the Government in times of peace and to the great call made upon the engineer in times of war. The Engineer School maintained at the Washington barracks seems to me an inadequate response to this obvious need, and I trust the attention of Congress can at some suitable time be called to the wisdom of providing facilities for original research and continuous and fundamental training for our body of engineers, that will keep them in the very forefront of engineering science.

National preparatory schools.—The suggestion made with regard to preparatory military schools is, of course, independent of the widespread movement for vocational training in the Army heretofore mentioned.

The method of selection of cadets for West Point has for years consisted of designation by the President, Senators, and Representatives, with examination as a prerequisite to acceptance; but we are learning daily that a nation efficiently organized from a military point of view must of necessity be efficiently organized industrially. We are learning also that the ideal military preparation of any country is one which is readily expanded in an emergency so as to include great numbers of men in the industrial and commercial life of the nation who have had enough preliminary training to make them convertible by brief additional training into officers. Should the United States ever be called upon to meet a great military emergency a large army would have to be sustained and supported by a highly coordinated industrial system. There should therefore be in the country at all times a great body of men trained as mechanics, whose places in such an emergency would be not in the ranks of the fighting forces but at the lathes and forges

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from which the ammunition supply of the Army must be drawn. I venture to believe that if the Federal Government were to establish in a number of places throughout the country schools preparatory to the Military Academy at West Point and the Naval Academy at Annapolis, in which the rudiments of a sound education, the elements of mechanical skill, the principles of business coordination, and the beginnings of military science were taught, these schools would develop the natural aptitudes of the students in such a way as to supply those fittest by temperament and talent to pursue in the Military Academy and the Naval Academy the study of military science; and incidentally these schools would furnish a great body of men returning to civil life fitted by training either to respond in an emergency to a call to the colors or to take their places as civil soldiers in the service of the Government in those industries and undertakings fundamental to the successful conduct of military operations.

The suggestion here made ought not perhaps to be further elaborated in this report, but I think it will be apparent on reflection that no expenditure in contemplation of a great military emergency would be more apt or helpful than one which gave to 25,000 or 30,000 young men the inspiration of industrial education at the hands of the Government, indoctrinated them with the spirit of service to their country, and tabulated them so that they would be always available for either the military or industrial service which their academic experience indicated most in accordance with their aptitudes. It seems equally likely that schools of this sort would spread the field of selection ideally over the country and make the cadets at West Point and midshipmen at Annapolis bodies of young men selected by a demonstration of their special aptitude for the pursuit of military service.

THE BOARD OF ORDNANCE AND FORTIFICATION.

The Board of Ordnance and Fortification is one of the most important standing boards of the War Department. It meets weekly for the consideration of questions affecting the fortifications of the United States and the arming of our forces with suitable implements of war. Scientific discoveries and invention are being made on every hand under the stimulus of the world war, and this board endeavors to keep abreast of the progress made throughout the world, to consider and weigh the claims of inventors and the possible applications of science to warfare, to the end that our Army may be provided with equipment of the best, at least to the extent possible under the appropriations made by Congress for the purpose. I do not undertake to give any detailed

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account of the operations of the board, but two or three subjects considered by it are sufficiently interesting for passing comment.

During the past fiscal year the Board of Ordnance and Fortification has conducted important tests at Fort Morgan, Ala., in cooperation with the Navy, to determine the effect of hostile gunfire on our coast fortifications. An experimental emplacement with a gun mounted on a disappearing carriage was fired upon by ships with their heaviest guns at varying ranges. These tests were conducted in the presence of members of the board and accomplished the purpose for which they were made.

Hammond radiodynamic system of torpedo control.—Further study and tests of an apparatus for the control of submarine torpedoes by radio, which had been under consideration by the board since the early part of 1913, had resulted in a recommendation by the board on February 12, 1915, for the purchase of all the secrets, patents, and developed methods pertaining to the Hammond radiodynamic system of torpedo control. This recommendation was renewed by the board at its meeting on February 15, 1916, and was supported in hearings before congressional committees. Appropriations were made for the purchase of the rights to the invention and the installation of one unit of the system, subject to the approval by the President after a satisfactory demonstration before a board of three Army and three Navy officers. This board has been named, and preparations for the test are in progress.

The board has also been engaged in the development of railway mounts for certain types of ordnance, motor trucks, armored cars, serial photography, searchlights, and flare bombs, and in the development and test of the radio control of torpedoes from an aeroplane in flight under the Hammond system.

Development of a portable searchlight for field artillery, inaugurated in 1906, was finally completed and the searchlight turned over to the Field Artillery Board for test.

MACHINE GUNS.

Perhaps no invention has more profoundly modified the art of war than the machine gun. In the European war this arm has been brought into very great prominence. It had, however, been developed to a serviceable state at the time of the Spanish-American War, although its use on a large scale had not been developed in any army until the outbreak of the European war. In 1912 Congress by an appropriation sanctioned the allowance of the War Department of four machine guns per regiment. From time to time tests have been made by the War Department to determine the relative serviceableness and efficiency of various machine guns. These tests have been attended by considerable controversy and the claims of

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different types of machine guns have been urged upon the public attention by widespread newspaper comment. In the meantime, in response to the stimulus of the European war, inventors and makers have hastened to develop and improve their respective arms and the field of selection has constantly widened so that when the Congress at the last session appropriated $12,000,000 for the procurement of machine guns it seemed important, for obvious reasons, to free the air of the various controversies and to set at rest in as final a fashion as possible the conflicting claims of makers and inventors. A board was therefore created in the War Department, made up in part of officers and in part of civilians, all of whom were selected so as to avoid any suggestion of prejudice on their part growing out of previous controversies and tests.

The board was instructed to take into consideration all tests previously made and to collate and study the European experience and hear from the representatives of all makers, and to conduct under its own guidance such tests as in its judgment were necessary or appropriate to a final determination of the present state of the art. On the basis of this sort of an investigation, the board was instructed to advise the department on the expenditure of the $12,000,000 appropriated for this purpose. A preliminary report has been made by this board, selecting the Vickers-Maxim type for heavy machine guns, recommending the purchase of a large supply of them, and fixing a date in May at which time exhaustive tests to determine the relative excellence of various types of light machine guns are to be made. The nature of military operations plainly dictates that our Army should be supplied in some proportion with guns of a heavy and of a light type for defensive operations. From fixed points the heavier type is doubtless the more reliable, but in rapid charging and field operations and in aeroplane work the mobility of the arm is an important consideration. It is therefore highly important that the Army should be supplied with an adequate number of both types of arm. The recommendations of the board already made recognize the wisdom of this course, and its conclusions when finally reached will no doubt be accepted as authoritative, although this is the field of most rapid advance in the perfection of arms, and the department will welcome each improvement and seek to avail itself of the progress made so that our equipment can at all times be of the most modern and effective kind.

THE PHILIPPINE GOVERNMENT.

Governor General Harrison's administration has continued to be marked by cordial relations between the executive and legislative branches of the government and between the upper appointive house

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of the legislature and the lower house. The recommendations of the Governor General to the legislature have been promptly formulated into law. The legislature passed satisfactory appropriation bills and imposed additional taxes to meet decreases in the revenues as the result of the European war.

Progress among the Moros and other non-Christians in the Department of Mindanao and Sulu, where Gov. Carpenter has continued in office, has exceeded the most sanguine anticipation.

Peace and good order have so marked the administration of Governor General Harrison that it should be unnecessary hereafter in official reports to mention these subjects, of such frequent reference in past reports of the Philippine Islands.

The financial condition of the government is excellent.

Detailed information with reference to our government in the Philippine Islands will be found in the annual reports of the Governor General and the Philippine Commission and of the Bureau of Insular Affairs of the War Department, transmitted with this report.

Congress at its last session was most attentive to the recommendations of the Philippine government and of this department with reference thereto. In addition to making effective several of the less important recommendations, it enacted the new Philippine organic act, which was approved by the President on August 29, 1916. While there has been continuous progress in the development of the Philippines toward self-government during American occupation, this is the first step of importance that Congress has taken in recognition of this development since the passage in 1902 of the act for the temporary government of the Philippine Islands.

PORTO RICO.

The past year has been one of marked prosperity in the industries of Porto Rico, particularly in what has become by far the greatest industry, the production of sugar.

There was natural disappointment in Porto Rico at the failure to secure the enactment by Congress at its last session of the proposed new organic act. It passed the House of Representatives, but failed to receive consideration by the Senate, and is still pending. It is hoped that at the coming session of Congress this act will be passed. It may be said now to have been pending for six years, since the House of Representatives in 1910 passed a bill which embodied the most important features of the pending bill. The disappointment of the Porto Rican people is greatest because of the continued failure to grant to them American citizenship, an aspiration in which they have been encouraged by every President of the United States since 1905.

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The progress of the government and people of Porto Rico is set forth fully in the annual report of the governor, transmitted herewith.

THE PANAMA CANAL.

The Panama Canal has been opened to commerce since August 15, 1914. However, on account of slides, the canal was closed to traffic from September 18, 1915, to April 15, 1916. The governor of the Panama Canal, in his last annual report, has again reported very fully on the slide situation and corrects many misapprehensions that exist concerning conditions on the Isthmus. He is confident that the slides will be overcome finally and for all time, and that there will be no further serious interruptions to traffic.

These same general conclusions were also reached by a committee of the National Academy of Sciences, appointed at your request, from which I quote the following paragraph from the preliminary report made by that committee:

> The committee looks to the future of the canal with confidence. It is not unmindful of the labor necessary to deal with the present slides; and it realizes that slides may be a considerable, but not an unreasonably large, maintenance charge upon the canal for a number of years; it also realizes that trouble in the Culebra district may possibly again close the canal. Nevertheless, the committee firmly believes that, after the present difficulties have been overcome, navigation through the canal is not likely again to be seriously interrupted. There is absolutely no justification for the statement that traffic will be repeatedly interrupted during long periods for years to come. The canal will serve the great purpose for which it was constructed, and the realization of that purpose in the near future is assured.

During the part of the fiscal year that the canal was open to traffic, 411 vessels passed from the Atlantic to the Pacific, with a total net tonnage of 1,308,230 tons and 1,434,236 cargo tons. Of this total number of vessels, 50 were engaged in United States coastwise trade, with a net tonnage of 183,372 tons and a cargo tonnage of 227,103 tons. Three hundred and seventy-six vessels passed from the Pacific to the Atlantic, with a total net tonnage of 1,171,531 tons and a cargo tonnage of 1,705,810 tons. Of this number of vessels, 41 were engaged in the coastwise trade, with a net tonnage of 167,594 tons and a cargo tonnage of 217,285 tons. The total cargo tonnage that traversed the canal during the fiscal year amounted to 3,140,046 tons.

Canal tolls.—The tolls collected during the fiscal year ended June 30, 1916, from vessels using the canal amounted to $2,399,830.42.

In his annual report for the fiscal year ending June 30, 1916, Gen. Goethals, Governor of the Panama Canal, again calls attention to the confusion resulting from the application of the United States rules of measurement of vessels in addition to the Panama Canal

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rules of measurement, and invites attention to the necessity of adopting some one rule for levying tolls on vessels passing through the canal. He states that as time goes on and traffic increases, with a resulting increase in the number and classes of vessels using the canal, experience has shown beyond a doubt that the fairest rules for determining the tonnage of a vessel on a just basis are the Panama Canal rules of measurement; in short, on the earning capacity of the ship. Furthermore, the application of the United States rules for measurement has resulted in exempting practically all sheltered spaces and deck loads of vessels transiting the canal, which, in turn, has resulted in discrimination against most of the United States vessels utilizing the waterway, due to the fact that almost all of the United States vessels are so constructed that they are unable to take advantage of shelter-deck space. On the other hand, the United States rules provide for the exemption of certain cabin space above the upper deck that is not a deck attached to the hull, which would, in most cases, result in discrimination against foreign vessels and in favor of United States passenger steamers, if the national register of the vessel were recognized as a factor in the levying of tolls. Had the Panama Canal rules for measurement been in force, the revenue from this source would have been $2,790,544.47, instead of $2,399,-830.42 as stated above, showing a direct loss of revenue on this account of $390,714.05.

Our relations with Panama.—Gen. Goethals also again calls attention to the necessity of an agreement between the Governments of the United States and Panama for modifying the so-called Taft agreement, which is, in many respects, disadvantageous to both Governments, and should be substituted by an agreement made in accordance with our present mutual needs and with our rights under the treaty.

THE PANAMA RAILROAD.

The result of the company's business of every character for the fiscal year ending June 30, 1916, after meeting the cost of operation, together with fixed charges aggregating $79,023.30 and charges for depreciation on rolling stock, floating and plant equipment of $461,244.48, shows—

Net income of	$2,453,592.34
As against	914,860.58
For the previous year, or an increase of	1,538,731.76

During that period $2,148,542.89 was applied to additions and betterments of plant and equipment.

The increase in revenue derived from the railroad from its local and through business as compared with the previous year amounts to $704,709.37 and is due entirely to the closing of the canal to traffic

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for a large portion of the year, which resulted in the railroad's transporting 306,057 tons of freight in excess of prior period.

The steamship line contributed to the net revenue $1,004,373.05—an increase over the previous fiscal year of $504,519.63, due to an increase in rates and in tonnage carried.

At the end of this fiscal year the company had $2,960,868.55 of available funds in the hands of designated depositories and, in addition, securities purchased at a cost of $2,040,168.75 in a reserve fund established September 12, 1911.

WATERWAYS AND WATER POWER.

The War Department is constantly dealing with the important question of waterways and water power, not only under the river and harbor legislation passed from time to time and dealing with specified waterway improvements but also under the General Dam Act and other legislation dealing with the diversion of streams and the establishment of water powers. Congress is, of course, actively considering this latter subject, and the prospect is that comprehensive provision will be made for the conservation of the undeveloped water power of the United States, which is enormous in its possibilities and comprises the great unexpended natural resource of the Nation.

Several special problems in this connection are more or less constantly before the department. The first of these is the Chicago Drainage Canal. This canal was built under the authority of the State of Illinois for sanitary purposes, but has never had the approval of Congress. It was completed in 1899, and application was then made to the War Department for permission to connect the canal with the south branch of the Chicago River, thus reversing the flow of that stream and diverting its waters from Lake Michigan into the drainage canal and thence into the Mississippi River. A conditional permit was granted in 1901, authorizing the diversion of 4,167 cubic feet seconds, and this amount has continued to be the legal limit. The drawing of water from the Chicago River into the canal affects the general navigation interests of the country on account of the tendency of such diversion to lower the level of the waters of the Great Lakes. From the beginning the operations of the Sanitary District have been looked upon with disfavor by navigation interests, and the Secretary of War has not only declined to increase the diversion temporarily authorized but has adhered to the decision that the permit granted was of a temporary character and that no permanent diversion of the waters of Lake Michigan could be made without express authority from Congress. Nevertheless the Sanitary District has for many years been withdrawing a much larger amount of water than is authorized by this permit. Upon two different occasions the Sanitary District has refused to conform to

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decisions of the Secretary of War declining to grant authority for larger diversions and has declared its intention to continue excess diversions unless prevented by injunction. Accordingly, in 1908 and again in 1910, bills in equity were filed at the instance of the War Department by the Attorney General seeking to enjoin excess diversion. The two suits were consolidated and tried in the United States District Court for the Northern District of Illinois, but remain undecided.

It seems quite clear that with the growth of population in Chicago the authorities of the Sanitary District contemplate still larger diversions than those already made, perhaps to the extent of 10,000 cubic feet seconds. This, it is estimated by the United States Lake Survey, would lower the waters of Lake Michigan and Lake Huron nearly 7 inches, Lake Erie about 5½ inches, and Lake Ontario about 4½ inches, mean lake levels, the reduction being much greater at low-water periods. The effect of such a lowering of lake levels would obviously be enormous losses to navigation interests and would necessitate large expenditures by the General Government for the restoration and reorganization of river and harbor improvements on the Great Lakes and their connecting waters, for which already appropriations aggregating more than $90,000,000 have been made.

A related project to the Chicago Drainage Canal is the canal proposed to be constructed for commerce from Chicago through the Des Plaines River, and applications for permits have been made to the War Department to authorize this construction. The matter has also been considered in Congress, but no action taken. At present the authority of the State of Illinois to issue bonds for the construction of this canal is drawn in question before the local courts of the State, and a temporary injunction has been issued against the sale of the bonds. No action has therefore been considered by the War Department and none will be considered so long as these legal obstacles remain in the way. It would seem that this subject ought to have the attention of Congress, for while it is asserted in behalf of the project that there is no intention of making further withdrawals of water from the Great Lakes for the purposes of the canal than are already being withdrawn for the drainage canal, yet it seems quite clear that should this commercial waterway be established and constructed, and then a greater volume of water be needed for its operation than was originally estimated, the pressure to allow additional lake diversions would be very great; and if it be true in fact that such diversions are prejudicial to the navigation interests of the Great Lakes and the eastward-flowing waters, the relative advantages of the two uses of these waters ought to be weighted and finally determined by the legislative body.

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Another question which has constantly been presented to the War Department for consideration is the withdrawal of additional water for power purposes at Niagara Falls. Congress has allowed the Burton Act to expire without renewal or substitution. There is therefore no express donation of power from Congress to the War Department to deal with this subject, and I have such grave doubt as to the power of the department under the General Dam Act, or any other general legislation, that I have hesitated to grant any of the permits so urgently requested. Under the international agreement between Canada and the United States a maximum of 20,000 cubic feet seconds is authorized to be diverted on the American side of the river. At present under permits granted either prior to or under the Burton Act about 15,000 cubic feet seconds are being so withdrawn. Plainly the subject is one which Congress ought to deal with, involving not only the most efficient use and just distribution of this great power but also affecting the preservation of the great natural spectacle presented by Niagara Falls. The present position of the department on the subject is that it ought not to complicate the consideration of the whole subject by Congress, and that in the absence of further enabling legislation the present situation must be maintained.

FINANCIAL STATEMENTS.

Annexed hereto as Appendix B, Table 1, is a tabulated statement showing expenditures for the last fiscal year (1916), estimates and appropriations for the present fiscal year (1917), and the estimates for the next fiscal year (1918). This statement shows only expenditures from appropriations made by Congress in pursuance of estimates submitted by the War Department. It does not, therefore, include expenditures from appropriations made by Congress without estimates from the War Department, known as "Indefinite annual appropriations" and "Permanent annual appropriations." Expenditures from appropriations of these two classes are included in the statements annexed hereto as Tables 2, 3, 4, and 5, which are complete and detailed statements of the financial transactions of the department during the fiscal year ended June 30, 1916, covering every appropriation made for the service of the fiscal years 1916, 1915, 1914, and 1913, and prior years, showing all balances from appropriations, the amounts appropriated under each title of appropriation, the amounts drawn from the Treasury, and the unexpended balance of each appropriation remaining in the Treasury June 30, 1916, subject to requisition. These statements show also the amounts covered into the surplus fund of the Treasury from all appropriations under the control of the War Department which are no longer available or required for expenditure.

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RETIREMENT OF GOVERNMENT EMPLOYEES.

An examination of the reports of my predecessors for a number of years shows that they have continuously recommended consideration of the subject of an equitable retirement law providing for the retirement of superannuated and disabled employees of the civil service. I am very happy to renew the recommendation. From time to time bills have been introduced into Congress providing for such retirement, but as yet none has been enacted into law. In the meantime, various industrial and transportation companies have found it to their interest to retire and pension superannuated employees. The Federal Government is and should be a model employer. The provisions now made by the Government in the matter of compensation, hours of labor, vacations, sick leave, and holidays, are all wisely generous both as an example and as establishing a harmonious and helpful relation between employer and employee, which both conserves the spirit and health of the employee and secures for the employer that willingness and good will out of which service of maximum efficiency naturally arises. There seems to remain as the chief thing yet to be done this provision for retirement upon superannuation. The law ought not, in my judgment, to provide a mere service pension as has sometimes been done in municipal and State services in this country, under which employees who have served a stipulated number of years are authorized to retire irrespective of their ability still to render competent service. The law ought rather, upon a minimum service required, to authorize retirement either for disability arising in the course of the service or occasioned by the service itself, and this retirement should be in the hands of a competent authority which would determine the inability of the particular employee further to render adequate service in his place of employment. The effect of such a law would be to give an assurance of a competent and comfortable old age. It would relieve the employee from the fear of loss of occupation and of livelihood, would further inspire him to loyalty to the Government as an employer, thus improving the general quality of the service rendered by Government employees, although that is already high, and would permit the replacement of some employees in the various departments who have long and faithfully served the Government and reached venerable but enfeebled years without having had an opportunity to accumulate any competence upon which their retirement can rest.

ENUMERATION OF REPORTS SUBMITTED.

I submit herewith the report of the Chief of Staff and the report made to him by the Chief of Coast Artillery; the reports of the heads of bureaus of the War Department; and the reports of the

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commissioners of the four military parks, the Superintendent of the United States Military Academy, the governor of Porto Rico, and the Philippine Commission.

NEWTON D. BAKER,
Secretary of War.

APPENDIX A.

DECISION OF THE SECRETARY OF WAR ON THE EFFECT OF SECTION 5 OF THE NATIONAL DEFENSE ACT.

WAR DEPARTMENT,
Washington, September 13, 1916.

The provisions of section 5 of "An act for making further and more effectual provision for the national defense, and for other purposes," approved June 3, 1916, relating to the General Staff Corps, call for an opinion from the Secretary of War as to their effect upon the transaction of the business of the department and the relations to exist in the future between the Chief of the General Staff and the heads of various bureaus of the War Department.

Section 5 provides that the General Staff Corps shall consist of one Chief of Staff, detailed in time of peace from major generals of the line, and various other officers, for some of whom specific duties are provided, as, for instance, that one of them is required to be president of the Army War College. The General Staff Corps is made a detailed corps, with the result that upon being relieved from duty in that corps officers return to the branch of the Army in which they were permanently commissioned, and no officer detailed to the General Staff Corps is eligible to a further detail therein until he shall have served two years with the branch of the Army in which commissioned, except in time of actual or threatened hostilities. Thus the General Staff Corps is made to consist of a constantly changing detail of officers brought from the line of the Army and returned thereto, with the apparent purpose of having this corps represent and embody the opinion of the Army upon technical military subjects, as that opinion is matured and developed from time to time by actual experience, and careful provision is made against the General Staff Corps becoming a permanent body disassociated from the actual military forces of the Nation, and therefore, to a greater or less extent, out of touch with the opinion of the active Army.

So far as the duties assigned to the General Staff Corps by section 5 of the National Defense Act are concerned, they are covered by the following language:

> All officers detailed in said corps shall be exclusively employed in the study of military problems, the preparation of plans for the national defense, and the utilization of the military forces in time of war, in investigating and reporting upon the efficiency and state of preparedness of such forces for service in peace or war, or on appropriate general-staff duties in connection with troops, including the National Guard, or as military attachés in foreign countries, or on other duties, not of an administrative nature, on which they can be lawfully and properly employed.

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Certain redistribution of functions are made by the act, the most notable being the abolition of the Mobile Army Division and Coast Artillery Division, the latter of which is created into a bureau of the War Department, and the business of the former is committed to the office of The Adjutant General. But scattered through this section there are statements of this import:

> That the War College shall remain fully subject to the supervising, coordinating, and informing powers conferred by law upon members of the General Staff Corps.

That the bureau of The Adjutant General shall, "subject to the exercise of the supervising, coordinating, and informing powers conferred upon members of the General Staff Corps by act of Congress last hereinbefore cited," perform the business theretofore performed by the Mobile Army Division, and that "the Chief of Coast Artillery shall be an additional member of the General Staff Corps and shall also be adviser to and informant of the Chief of Staff in respect to the business under his charge."

And then follows certain restrictive language which calls for this opinion. The language is as follows:

> *Provided further*, That hereafter members of the General Staff Corps shall be confined strictly to the discharge of the duties of the general nature of those specified for them in this section and in the organic act of Congress last hereinbefore cited, and they shall not be permitted to assume or engage in work of an administrative nature that pertains to established bureaus or offices of the War Department, or that, being assumed or engaged in by members of the General Staff Corps, would involve impairment of the responsibility or initiative of such bureaus or offices, or would cause injurious or unnecessary duplication of or delay in the work thereof.

It will be observed that the section under review does not negative the survival of the "supervising, coordinating, and informing powers" conferred by law upon members of the General Staff Corps, but, on the contrary, reiterates those powers, and in the transfer of certain business in the War Department from divisions abolished by the act expressly subjects those powers in the hands of the new donees to the General Staff powers either enumerated in this section or incorporated into it by reference to the act approved February 14, 1903, which created the General Staff Corps, no part of which act is in express terms repealed. It seems clear, therefore, that the new part of this legislation, namely, that restricting the work to be done by members of the General Staff Corps to work of a nonadministrative nature is the only phase of it calling for interpretation, and it is equally clear that this interpretation must proceed upon the foundation established by an understanding of the intention of Congress, as expressed in the act of February 14, 1903, which is not only the act by which the General Staff was established, but is plainly the act assumed by Congress as the fundamental and organic basis of whatever modifications are intended by section 5 of the act of June 3, 1916.

The development of a general scheme of systematic instruction in the Army, leading to the original War College Board, undoubtedly directed the attention of the Secretary of War to the general subject of Army organization. In the Report for 1901, Secretary Root said:

> The creation of the War College Board and the duties which will be imposed upon it, as indicated in my report for 1899, is probably as near an approach to the establishment of a General Staff as is practicable under existing law. * * *
>
> No one can doubt that the general and field officers of our Army have been too exclusively occupied in details of administration, with inadequate opportunity

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and provision for the study of great questions, and consideration and formation of plans, comprehensive forethought against future contingencies, and coordination of the various branches of the service with a view to harmonious action. A body of competent military experts should be charged with these matters of the highest importance, and to that end I strongly urge the establishment by law of a General Staff, of which the War College Board shall form a part.

In the Annual Report for 1902 Secretary Root returns to this subject and argues it at considerable length, showing continuous improvement in Army organization, but saying:

Our military system is, however; still exceedingly defective at the top. We have a personnel unsurpassed anywhere, * * * We have the different branches of the military service well organized, each within itself, for the performance of its duties. Our administrative staff and supply departments, as a rule, have at their heads good and competent men, faithful to their duties, each attending assiduously to the business of his department.

But when we come to the coordination and direction of all these means and agencies of warfare, so that all parts of the machine shall work true together, we are weak. Our system makes no adequate provision for the directing brain which every army must have, to work successfully. Common experience has shown that this can not be furnished by any single man without assistants, and that it requires a body of officers working together under the direction of a chief and entirely separate from and independent of the administrative staff of an army. * * * This body of officers, in distinction from the administrative staff, has come to be called a general staff.

The whole discussion of this subject by Secretary Root is informing, and in order to get an understanding of the full weight of the argument made all that is said on that subject in his report should be examined. The following sentences, however, are indicative of the thought in his mind:

Such a body of men doing general staff duty is just as necessary to prepare an army properly for war in time of peace as it is in time of war. It is not an executive body; it is not an administrative body; it acts only through the authority of others. It makes intelligent command possible by procuring and arranging information and working out plans in detail, and it makes intelligent and effective execution of commands possible by keeping all the separate agents advised of the parts they are to play in the general scheme. * * *

The title of Chief of Staff, on the other hand, denotes a duty to advise, inform, and assist a superior officer who has command and to represent him, acting in his name and by his authority in carrying out his policies and securing the execution of his commands. The officer who accepts the position assumes the highest obligation to be perfectly loyal to his commander, to exclude all personal interest from his advice and representation, and to try, in the most whole-hearted way, to help him to right conclusions, and to successful execution of his policies, even though his conclusions may not agree with the advice given. For the successful performance of his duties the Chief of Staff must have the entire confidence of his commander. * * *

The Constitution requires the President to be the commander of the Army, and a great variety of laws require the Secretary of War, who directly represents the President, to supervise and direct the expenditure of the vast sums of money appropriated annually by Congress for the support of the Army. As every important movement requires the use of money, so long as the Secretary of War performs this duty faithfully he must practically control the operations of the Army in time of peace, and there can not be any independent command of the Army, except that which the President himself exercises over the Secretary of War and everybody else in the military establishment. It is because Congress has always looked to the civilian Secretary at the head of the War Department to hold the purse strings, that the laws require all the great departments which build the fortifications and furnish the arms, supplies, and munitions of war, and actually expend the money for those purposes, such as the Engineer, Ordnance, Quartermaster's, and Subsistence Departments, to act under the direction of the Secretary, and withhold from the officer who is called "Commanding General of the Army" all control over those departments.

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Continuing the argument thus made Secretary Root shows that the office of Commanding General of the Army and the powers conferred upon that officer were entirely inconsistent with and inadequate for the duty contemplated for the Chief of Staff, which office he sought to have established. For the latter office he desired powers of coordination, supervision, and control, in the name of the Secretary of War and under the direction of the Secretary of War, wholly different from and greater than those previously intrusted to the Commanding General of the Army.

In his report for 1903, after the passage of the Act of February 14, 1903, Secretary Root says:

> The important military event of the year affecting the Regular Army has been the reorganization of the system of military control under the general staff act approved February 14, 1903. * * * This act abolished the separate office of Commanding General of the Army, provided for a military Chief of Staff to the President, who, acting under the directions of the President, or of the Secretary of War representing him, should have supervison not only of all troops of the line but of the special staff and supply departments which had theretofore reported directly to the Secretary of War; and it created for the assistance of the Chief of Staff a corps of 44 officers, who were relieved from all other duties.

After describing the mode of organization of the first General Staff Corps, Secretary Root says:

> The tenth article of the regulations relating to the Chief of Staff states explicitly the new theory of control inaugurated by the General Staff act.

That new theory he quotes from the regulations to be as follows:

> 10. Under the act of February 14, 1903, the command of the Army of the United States rests with the constitutional Commander in Chief, the President. The President will place parts of the Army, and separate armies whenever constituted, under commanders subordinate to his general command; and, in case of exigency seeming to him to require it, he may place the whole Army under a single commander subordinate to him; but in time of peace and under ordinary conditions the administration and control of the Army are effected without any second in command.
>
> The President's command is exercised through the Secretary of War and the Chief of Staff. The Secretary of War is charged with carrying out the policies of the President in military affairs. He directly represents the President and is bound always to act in conformity to the President's instructions. Under the law and the decisions of the Supreme Court his acts are the President's acts, and his directions and orders are the President's directions and orders.
>
> The Chief of Staff reports to the Secretary of War, acts as his military adviser, receives from him the directions and orders given in behalf of the President, and gives effect thereto in the manner hereinafter provided.

Secretary Root then says, with his customary clarity and decision of expression:

> It will be perceived that we are here providing for civilian control over the military arm, but for civilian control to be exercised through a single military expert of high rank, who is provided with an adequate corps of professional assistants to aid him in the performance of his duties, and who is bound to use all his professional skill and knowledge in giving effect to the purposes and general directions of his civilian superior, or make way for another expert who will do so.

Commenting upon the effect of the inauguration of the system, Secretary Root says:

> In some cases the intervention of the Chief of Staff and his assistants has resulted in an apparent diminution of the independent authority of other officers. This has been received almost universally with a cheerful readiness to subordinate personal considerations to the good of the service.

The act of February 14, 1903, is universally regarded as the most important piece of Army legislation adopted in recent years. It was

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recognized at the time as a thoroughgoing and radical change in the theory of Army control. Not unnaturally this act received very earnest consideration in Congress prior to its passage. The hearings on it were extensive, and Secretary Root, one of the foremost lawyers of the country, and one of the great Secretaries of War of modern times, in his appearance before committees illustrated and reiterated the purpose and meaning of the measure advocated by him. I have examined these hearings with some care, and I find that, without exception, witnesses and members of both House and Senate understood the purpose of the act to be as gathered from the previous quotations from the annual reports of Mr. Root, as Secretary of War. Thus, in his hearing before the Senate Committee on Military Affairs, Secretary Root says:

> You have imposed by law upon the Secretary of War the responsibility for the expenditure of great sums of money which you appropriate every year, and you have established a great number of corps, bureaus and departments which the Secretary is bound to supervise. Now, I have doubt whether it is competent for the Secretary of War to do that through the intermediation of a Chief of Staff or a General Staff unless there is some statutory authority. I do not know whether in the face of the statute which makes the Quartermaster General and the Commissary General and the Chief of Ordnance directly responsible to the Secretary of War I can order them to report to a Chief of Staff.
>
> I do not want you to relieve the Secretary of War of responsibility, but I want you to enable him to discharge this responsibility through a military officer who will gather together in the performance of staff duties all the considerations affecting the decision that the Secretary has to make, and do it with military knowledge, instead of the Secretary having to dig around and gather them himself and collate the advice and requests that come from the heads of these different departments that are all overlapping and interwoven in their action.

In short, I think nothing can be clearer from the written opinions of the Secretary of War, whose suggestions are responsible for the creation of the General Staff, and from the hearings before the committees of Congress and the debates in the Congress upon the passage of the General Staff bill, than that it was intended to supply to the Secretary of War a lawfully authorized military adviser to whom all other heads of departments and bureaus should report, and through whom the Secretary of War should be constantly kept advised and informed; that it should be the duty of this officer, aided by the General Staff Corps created by the act, so to advise himself of all operations of the military departments and bureaus of the War Department as to inform the judgment of the Secretary upon any question submitted for his decision, and by correlating, coordinating, and supervising the judgments of the various heads of bureaus and subdepartments be able to prevent a civilian Secretary of War from inadvertent error, due either to a lack of familiarity with military matters or to the vast pressure of business of many and diverse characters which too far absorb the time of the Secretary of War to permit him, personally, to undertake the detailed study necessary in each case.

It was out of this atmosphere and with this intention that the act of February, 1903, was passed, and the language adopted to meet this situation seems most apt and adequate. I quote from the statute:

> There is hereby established a General Staff Corps, to be composed of officers detailed from the Army at large under such rules as may be prescribed by the President.

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SEC. 2. That the duties of the General Staff Corps shall be to prepare plans for the national defense and for the mobilization of the military forces in time of war; to investigate and report upon all questions affecting the efficiency of the Army and its state of preparation for military operations; to render professional aid and assistance to the Secretary of War and to general officers and other superior commanders, and to act as their agents in informing and coordinating the action of all the different officers who are subject under the terms of this act to the supervision of the Chief of Staff; and to perform such other military duties not otherwise assigned by law as may be from time to time prescribed by the President.

* * * * * * *

SEC. 4. That the Chief of Staff, under the direction of the President or of the Secretary of War, under the direction of the President, shall have supervision of all troops of the line and of The Adjutant General's, Inspector General's, Judge Advocate's, Quartermaster's, Subsistence, Medical, Pay, and Ordnance Departments, the Corps of Engineers, and the Signal Corps, and shall perform such other military duties not otherwise assigned by law as may be assigned to him by the President. Duties now prescribed by statute for the Commanding General of the Army as a member of the Board of Ordnance and Fortification and of the Board of Commissioners of the Soldiers' Home shall be performed by the Chief of Staff or other officer designated by the President.

If this act means anything, it means that in large and general terms the Chief of Staff thereby authorized has supervision of the corps, bureaus, and departments therein enumerated, and the large and generous terms employed indicate the plain intention of Congress to empower the Chief of Staff to stand in the relation of military aide and adviser to the Secretary of War, and, acting in his name, so to direct the activities of the heads of bureaus and subdepartments as to coordinate and harmonize their activities.

If the large and general purpose outlined in the foregoing paragraph has been changed by the language of section 5 of the National Defense Act, that change must result from these words:

All officers detailed in said corps shall be exclusively employed * * * on other duties, not of an administrative nature,

or from these words in the proviso:

and they shall not be permitted to assume or engage in work of an administrative nature that pertains to established bureaus or offices of the War Department, or that, being assumed or engaged in by members of the General Staff Corps, would involve impairment of the responsibility or initiative of such bureaus or offices or would cause injurious or unnecessary duplication of or delay in the work thereof.

The weighty part of this language apparently is the prohibition upon members of the General Staff from performing duties of an administrative nature, and we are called upon, therefore, to determine what was meant by the words "administrative duties" in this act.

At the outset it would seem obvious that no such glancing blow as this could have been intended as an implied repeal of the whole fundamental theory of the reorganization act whereby the General Staff was created. It is fair to assume that Congress did not intend to inaugurate a race for power among bureau chiefs or to erect the bureaus of the War Department into a system of coordinated impediments to one another. It must not be forgotten that the Army is a whole—divided, for the purposes of administration, into many parts—but each action by any of the parts must be consistent with the healthy action of the whole. A realization of this was the moving

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cause to the creation of the General Staff; and if the Congress had come to believe that its effort to correct the evils sought to be redressed by the creation of the General Staff was a failure and that no such supervision and coordination as was then aimed at had resulted from the General Staff when created, and so believing had desired to abandon that experiment, it would not have been done by this tentative, obscure, and admonitory sentence. In other words, an evil of large proportions and menacing character had presented itself in 1903. Congress erected a new system to deal with that evil. If the system has failed and Congress is disillusioned with it as an experiment, the whole structure will be swept aside and some new corrective of the old evils attempted. But it is quite inconceivable that the Congress in any such frame of mind would merely paralyze without removing the corrective agency it had created and provide no substitute for it—restoring the old system with all of its evils and the added encumbrance of a paralyzed and inoperative machine originally designed as a corrective.

I have read the extremely able arguments which have been prepared for my consideration on this subject by the Judge Advocate General and others. To the extent that I am now disagreeing with the view therein expressed, it seems to me that my disagreement is rather one of assumptions than of logic. If it be assumed that a lot of promiscuous interferences, duplications, and losses of time had grown up in the operation of the General Staff system, then the language adopted by Congress would seem to be an admonition to the Secretary of War to correct those difficulties; and, to the Chief of the General Staff, recalling to his attention the primary purposes for which the General Staff was created, in order to prevent a practice growing up which would involve the operations of the General Staff in masses of detail, and so far absorb its mind as to leave no leisure for the consideration of general-policy questions, which are, of course, of great moment to be considered. It seems to me that the Judge Advocate General does assume that the Congress had in mind the existence of those duplications, interferences, and losses of time, and that therefore the Congress by the use of the word "administrative" must have intended to provide a rule which would exclude the General Staff practically from every other concern except the consideration of large-policy questions. I admit that where an evil exists and a legislative enactment is addressed to it, the rule of interpretation seeks to expand the proposed remedy to accomplish the purpose for which it was designed. But the Congress had before it no catalogue of evils. No complaints were made to the Congress by the Secretary of War—who speaks with authority for the War Department—that he found himself unable to secure an adequate consideration of major policy problems from the General Staff because Congress had imposed conflicting duties upon the General Staff. Individual officers of the Army may have undertaken to express their opinions to Members of the Congress about the exercise of the coordinating functions of the General Staff. But all such opinions are necessarily partisan and partial, so that we must limit our assumption to the facts, and in so doing we find no system of facts adequate as a predicate for action by Congress which would destroy the power of

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the General Staff, bind the Secretary of War to rely upon the uncoordinated advice of individual bureau chiefs, and while giving the Chief of the General Staff the duty of coordinating the functions of the military bureaus of the department at the same time prohibit that degree of supervision over the affairs of those bureaus which in his judgment is necessary to equip him with qualifying information.

As a matter of fact, the word "administrative" is one of extremely doubtful import. Legally it perhaps means, when applied to duties, such duties as involve no exercise of discretion. That is to say, if an officer is directed by statute to pay a dollar a day to each of 10 persons, no discretion is involved in his payments—his duty is administrative. If such an officer is authorized to pay a dollar a day to so many of a group of 10 persons as shall have lived up to a certain standard of performance in duties assigned them day by day, then the discretion of determining the merit of applicants for the pay is nonadministrative, because a discretionary duty. I doubt very much, however, whether this word was used in any such technical sense. The rule of construction in such cases is that unless there is something in the context to determine that a technical meaning is attached to a term, it will be assumed to be used in the plain, ordinary, and popular meaning of the word. Now, the plain, ordinary, and popular meaning of this term in this context obviously is that the Chief of the General Staff and the members of the General Staff Corps shall not administer the offices of the bureau chiefs. That is to say, that the Chief of the General Staff shall give no order to a subordinate of the Chief of Ordnance or The Adjutant General, for that would be the administration of that department, and such administration must proceed from the head of the department. Indeed, it seems to me entirely likely that the statute under examination provides its own definition of the meaning of the word "administrative," for it says, in effect, that these administrative duties are such as those which pertain—

to established bureaus or offices of the War Department, or that, being assumed or engaged in by members of the General Staff Corps, would involve impairment of the responsibility or initiative of such bureaus or offices, or would cause injurious or unnecessary duplication of or delay in the work thereof.

These words last quoted supply all the guide necessary for a working definition of the word "administrative," and they enumerate the kind of acts which the Congress does not intend the General Staff to undertake. They are exactly the kind of acts which the original act creating the General Staff did not intend to assign to the General Staff. Secretary Root said the proposed duties are not administrative, are not executive, but are correlating, informing, supervising. So that we in effect have in this latest legislative expression a reiteration of the intentions of the Congress in the earlier act as defined and explained by the authority of the act and the policy which it embodied.

It seems to me, therefore, entirely clear that the structure erected by the act of 1903 remains as then created, except for the explicit modifications provided in the act of 1916 and not affecting the current of this argument; that the Chief of the General Staff is charged with the supervision of the various departments, bureaus, and offices

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of the War Department for the purpose of coordinating their activities and for the purpose of so informing the judgment of the Secretary of War that he may not, by inadvertence or unfamiliarity with military practice, take action which would be prejudicial to harmonious results in the military service. Finding the intention of the act to be as here set forth, it is my opinion that the Chief of the General Staff is the primary adviser of the Secretary of War in all matters having to do with the Military Establishment; that in order properly to inform himself, the Chief of the General Staff must know of the proceedings in the various bureaus, departments, and offices; that, to as large an extent as possible, the action of these bureaus, departments, and offices should be regulated by large policies laid down by the Secretary of War, the carrying out of which would involve merely administrative activity; but that in order to make sure that these policies are not being departed from or ought not to be changed, in order properly to harmonize the relations of several bureaus, it is not only appropriate but necessary for the Chief of the General Staff to pursue, with as great detail as his judgment dictates, the execution of these policies through the several bureaus.

It is easy to imagine a case in which the chief of a bureau or an officer would feel that some policy provided by the Chief of Staff in an effort to coordinate the work of several bureaus unduly restrained his activities, and that such a bureau chief would desire to argue personally for his point of view before the Secretary of War. In any such cases the Chief of Staff should secure a hearing for the bureau chief before the Secretary, and I have no doubt that any Chief of Staff or any Secretary of War would be very zealous to see that opinions earnestly entertained by officers were considered thoroughly, for, after all, we are all of us common servants with a common purpose in a common cause, and our zeal for particular branches of that service is merely a specialization of our zeal for the welfare and success of the larger whole which includes it. A recognition of this fact produced the spirit which Secretary Root referred to with so much pleasure immediately after the creation of the General Staff, in which slight irritations, due to the unaccustomed machinery, easily gave way and harmonious relations arose. This fine spirit for the public service is no less present now and will work as excellent results.

The policy of the War Department, therefore, will remain as heretofore; the Chief of Staff, speaking in the name of the Secretary of War, will coordinate and supervise the various bureaus, offices, and departments of the War Department; he will advise the Secretary of War; he will inform himself in as great detail as in his judgment seems necessary to qualify him adequately to advise the Secretary of War. Should any regulations or orders be necessary to place the determination herein made in proper form, the Chief of the General Staff will prepare them for my signature.

NEWTON D. BAKER.

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REPORT OF THE CHIEF OF STAFF.

WAR DEPARTMENT,
OFFICE OF THE CHIEF OF STAFF,
Washington, September 30, 1916.

SIR: I have the honor to submit my annual report.

MILITARY POLICY.

In compliance with instructions of the Secretary of War, the War College Division of the General Staff Corps prepared a Statement of a Proper Military Policy for the United States, which was submitted to the Secretary of War, September, 1915. This Statement of Policy was published as a separate appendix to the last annual report of the Secretary of War, and as, in a very large measure, it furnished the basis for discussion of as well as the basis for the legislation passed during the past session of Congress, I have included it for convenience of reference as an appendix to this report.

The General Staff in this policy report stated the military problem before the country in the following language:

> From what has been stated, we are forced to the conclusion that we must be prepared to resist a combined land and sea operation of formidable strength. Our principal coast cities and important harbors have already been protected by harbor defenses, which, by passive method alone, can deny to an enemy the use of these localities as bases for such expeditions.
>
> The enemy being unable to gain a foothold in any of these fortified areas by direct naval attack will therefore be forced to find some suitable place on the coast from which land operations can be conducted both against the important coast cities and the rich commercial centers in the interior. Long stretches of coast line between the fortified places lie open to the enemy. The only reasonable way in which these localities can be defended is by providing a mobile land force of sufficient strength, so located that it may be thrown in at threatened points at the proper time.
>
> It has just been shown what the strength of these expeditions might be, as well as the time required for any one of them to develop its whole effective force. Hence, it can be seen, when we take into consideration the possible two months' delay provided by the Navy, that our system should be able to furnish 500,000 trained and organized mobile troops at the outbreak of the war and to have at least 500,000 more available within 90 days thereafter. Here, however, it must be pointed out that two expeditions alone will provide a force large enough to cope with our 1,000,000 mobile troops, and consequently we must, at the outbreak of hostilities, provide the system to raise and train, in addition, at least 500,000 troops to replace the losses and wastage in personnel incident to war. To provide this organized land force is the military problem before us for solution.

This report was based upon the actual needs of the country, as they existed at that time, leaving to Congress the ways and means to provide the men. The first 500,000 mentioned was to be composed of the Regular Army and its reserve, the reserve to be produced by a term of enlistment of eight years, two with the colors and six with the reserve. The second 500,000 mentioned above was to be composed of citizen soldiers, to be given nine months' military training in time of peace and three months' additional training on or before the outbreak of war before they would be prepared for war service.

The General Staff prepared a plan of organization for the first 500,000 which called for 7 infantry divisions of 9 regiments each, and 2 cavalry divisions of 9 regiments each, with necessary field artillery, engineer and signal troops to complete the divisions. In

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addition, there was to be provided a total of 263 companies of coast artillery. The total number of units recommended by the General Staff for the active army being:

65 regiments of infantry,
25 regiments of cavalry,
21 regiments of field artillery,
263 companies of coast artillery,
7 regiments of engineers,
2 mounted battalions of engineers,
11½ signal corps battalions,
8 aero squadrons,

being an increase in the Regular Army of

34 regiments of infantry,
10 regiments of cavalry,
15 regiments of field artillery,
93 companies of coast artillery,
5 regiments of engineers,
2 battalions of mounted engineers,
169 officers and 2,115 men in the Signal Corps, and necessary increase in the staff corps.

Congress accepted the recommendation of the General Staff in regard to the number of organizations, but at practically two-thirds of the strength recommended.

The peace strength of the Regular Army after July 1, 1920, including 45,177 noncombatant troops, will be 11,327 officers and 208,338 men, and a war strength of 11,942 officers and 287,846 men. The increase, as recommended by the General Staff, is to take place in 5 annual increments. When the increase is completed and the necessary oversea garrisons provided, there will be left in the United States just sufficient troops to organize 4 infantry divisions and 2 cavalry divisions, with necessary auxiliary troops.

The recommendation of the General Staff that a citizen volunteer army of 500,000 men, with a minimum of nine months' training in time of peace, be created was not accepted by Congress. This recommendation was attacked on various grounds as being radical, unnecessary, and impracticable, and as being particularly aimed at the Organized Militia, which the General Staff recommended be maintained as it existed at the date of the report. In the policy report, the General Staff summarized the limitations of the Organized Militia in the following language:

It is stated later in this report that 12 months, at 150 hours per month, "is considered the minimum length of time of actual training considered necessary to prepare troops for war service." Due to constitutional limitations, Congress has not the power to fix and require such an amount of training for the Organized Militia. No force can be considered a portion of our first line whose control and training is so little subject to Federal authority in peace. No force should be considered a portion of our first line in war unless it be maintained fully organized and equipped in peace at practically war strength. This would exclude the Organized Militia from consideration for service in the first line *mainly because of the impossibility of giving it in peace the training required for such function.*

In the consideration of this question, the constitutional limitations regarding the militia occupied most of the attention of Congress to the exclusion of the standard of training necessary to prepare troops for service in the first line. Congress believed, as shown by the national defense act, that the constitutional questions that were raised were not serious enough to interfere to any extent with the

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transformation of the Organized Militia into a citizen force substantially in number as recommended by the General Staff, and the bill, as passed, provides that at the end of five years the National Guard will consist of about 17,000 officers and 440,000 men, the period of enlistment in the National Guard being six years, three with the colors and three with the reserve of the National Guard. A liberal provision is made in the bill for the payment.

The period of training prescribed for the National Guard is 15 days' field service, including target practice, and 48 armory drills of not less than 1½ hours, or an annual training of approximately 25 days, or 75 days in three years. This period of training is six months less than the peace training recommended by the General Staff for the citizen army, and nine months less training than necessary for war service, and, in my judgment, precludes this force from being fit for war service until it has received at least six months' additional training in time of war. I am entirely in accord with the opinion of the General Staff that troops with less than 12 months' intensive peace training can not be considered dependable troops for war service.

The debate in Congress and the discussion in the press of the country indicated that there is a very widespread, serious and vital misconception in this country in regard to the time it takes to train the individual soldier and the organization of which he is an element.

In the belief that soldiers can be very quickly trained and armies improvised, we not only run counter to the military opinion and practice of practically all the other great nations of the world, but we run counter as well to our own experience as a nation in war. The time required for the training of armies depends largely on the presence or absence of trained officers and noncommissioned officers. If there be a corps of trained officers and noncommissioned officers and a tested organization of higher units with trained leaders and staff officers, the problem of training is largely limited to the training of the private soldier. This has been satisfactorily accomplished in Europe as is being demonstrated in the present war by giving the soldiers in time of peace two years of intensive training with the colors and additional training in the reserve.

It should be obvious to any unprejudiced mind that if we are to *defeat* highly trained and splendidly disciplined armies of our possible enemies, our own forces when called upon for battle should have training and discipline at least equal to that of our opponent. While we have splendid material for soldiers, for us seriously to claim that the average American youth can be trained and disciplined in less time than the average English, French, German, or Japanese youth argues a decided lack of understanding on the part of our people of the progress and character of the English, French, German, or Japanese people. All that we can hope for and confidently claim is that, given equal intensive training as to time, under equally favorable conditions as to officers and noncommissioned officers for instructors and leaders, our soldiers will be prepared to assure in war the success of our armies.

Under their systems of intensive training other nations require approximately 6 hours' daily work in theoretical and practical instruction of each soldier, or approximately 4,000 hours during the 2-year period of training. In our Regular service, due to the necessity

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of depending on volunteer enlistment, we require in 3 years approximately the same number of hours that the army in which universal and compulsory service exist obtains in 2 years.

If we continue to accept approximately 4,000 hours as our standards of training and discipline, we will meet our opponents on practically equal terms, providing that the quality of our instructors and leaders is up to their standard. If we adopt a lower standard of training, we lessen directly the fighting efficiency of our troops.

It should be clear that troops trained for 1 year of intensive training, or approximately for 2,000 hours, are only *one-half* as well trained and *less than one-half* as well disciplined as they would be if they had 4,000 hours of training in 2 years. It is obvious that troops trained for only 1 year in time of peace will have to be given additional training in time of war before they can successfully oppose troops with the high standard of training and discipline that is given in 2 years in time of peace, and that we will have to make up for any deficiency in training and discipline by decided superiority in numbers.

If we can not increase the period of training for the National Guard to the minimum laid down as essential by the General Staff, and it is very doubtful if we will be able to do so and keep the force recruited to the maximum authorized by Congress, we are confronted by a serious situation. The difficulty that is being now experienced in obtaining recruits for the Regular Army and for the National Guard in service on the border and at their mobilization camps raises sharply the question of whether we will be able to recruit the troops authorized by Congress in the national-defense act, both Regular Army and National Guard.

It is, in my judgment, a cause for very sober consideration on the part of every citizen of the country when the fact is fully understood that the units of the National Guard and the Regular Army have not been recruited to war strength in the crisis which we have just passed through. The number of units in both organizations are relatively small and the total number of men needed to recruit them to war strength certainly not great—almost negligible, in fact, when considered in relation to the total male population in the United States of military age; that is, men between 18 and 45 years. Many of the elements which favor recruiting under a volunteer system in this country existed at the time of the call for mobilization for the militia. Among others may be enumerated:

a. The agitation for preparedness that has swept over the country, due largely to the lessons of the European war.

b. The public press of the country generally, regardless of party, had given liberal space in the news and editorial columns in favor of military preparation for months previous to the call.

c. Preparedness parades in which thousands had participated had recently been held in many of the principal cities of the country.

d. Congress had but recently, in response to public sentiment, passed a new national-defense act, which will ultimately almost double the size of our small Regular Army and almost quadruple the size of the Organized Militia.

e. In response to the same national sentiment, Congress has passed, since the National Guard was called to active service, a naval bill giving the largest naval increase in the history of the country.

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These facts are mentioned to show that public interest in the Army and Navy, and the national defense generally, had been aroused to a comparatively high degree; yet, in what is considered by the Government a grave emergency the National Guard is mobilized for service on the southern frontier to protect the lives of American men, women, and children, recruiting is found so difficult that many of its organizations have not yet, over three months after the call, been raised to even minimum peace strength, and likewise the units of the Regular Army have not been recruited to the minimum peace strength authorized in the new national-defense act. Anyone at all familiar with the effort made and now being made to recruit the units of both the Regular Army and the Organized Militia will understand that the failure to obtain recruits is not due to defective methods of recruiting. In fact, every effort has been made, in many cases an actual house-to-house canvass being undertaken to obtain recruits for the militia. It can be stated, I think, without fear of contradiction, that there are very few young men in the country to-day who do not know that there is a demand for their services, both in the Organized Militia now on the border or shortly to go there and in the units of the Regular Army now on the border or in Mexico.

In view of the above facts, it would be, indeed, an exceedingly shallow thinker who could attach much blame to the personnel of either the Regular Army or the Organized Militia for failure to recruit to war strength. The failure should make the whole people to realize that the volunteer system does not and probably will not give us either the men we need for training in peace or for service in war.

In my judgment, the country will never be prepared for defense until we do as other great nations do that have large interests to guard, like Germany, Japan, and France, where everybody is ready and does perform military service in time of peace as he would pay every other tax and is willing to make sacrifices for the protection he gets and the country gets in return. The volunteer system in this country, in view of the highly organized, trained, and disciplined armies that our possible opponents possess, should be relegated to the past. There is no reason why one woman's son should go out and defend or be trained to defend another woman and her son who refuses to take training or give service. The only democratic method is for every man in his youth to become trained in order that he may render efficient service if called upon in war.

UNIVERSAL MILITARY TRAINING.

The following is taken from a hearing before the Committee on Military Affairs, House of Representatives, January 10, 1916:

Gen. SCOTT. What I favor now; that is, I believe all soldiers who have given this matter any thought believe that there should be universal service.

Mr. QUIN. What do you mean by universal service?

Gen. SCOTT. I mean that every man of suitable age should be available for training for the defense of his country.

Mr. QUIN. Do you mean that there should be compulsory military service?

Gen. SCOTT. Yes.

Mr. QUIN. What age would you require for that?

Gen. SCOTT. About from 18 to 21 years.

Mr. QUIN. General, is it not the idea, then, of the General Staff and the War Department, in fact, to bring about what you call universal military service?

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Gen. SCOTT. Do you mean, has an effort been made to that end?

Mr. QUIN. No. Is not that the idea, the plan that you want to be brought about in time of peace?

Gen. SCOTT. I can only speak for myself.

Mr. QUIN. Yes; I understand, you can only speak for yourself.

Gen. SCOTT. I feel that the armies of all civilized countries of great size, or countries that are in danger of being invaded, have been obliged to come to that, and I see that while England stood out until now, she is coming to it now, although they are late about it.

Mr. QUIN. But England did not come to that until after she was engaged in war, did she?

Gen. SCOTT. She had much better have come to it before the war began.

Mr. QUIN. That is a matter of opinion, General. I am speaking of this country in time of peace. Do you favor compulsory military service in time of peace?

Gen. SCOTT. Yes; at this moment.

The above expressions of an earnest, thoughtful conclusion require amplification.

Universal military training has been the corner stone upon which has been built every republic in the history of the world, and its abandonment the signal for decline and obliteration. This fact was fully recognized by the makers of our Constitution and evidenced in our early laws. A regular army was regarded as inconsistent with the principles of free government, dangerous to free institutions, and apart from the necessities of the times. All were imbued with a patriotism which would make them stand shoulder to shoulder in upholding the laws, and in the defense of the common country, sharing equally the blessings of peace and the hardship of war. The law required every able-bodied male between 18 and 45 years to keep himself provided with rifle and ammunition and to attend muster, and was in effect compulsory military service. They were called together for training at muster time only, for the outdoor life of the early settlers was considered sufficient training for any military duty they were then liable to be called upon to perform. Unfortunately the doctrine of States rights crept in to prevent the enforcement of Federal law, and each State was left to build up its militia. The Regular Army existed as a small force to protect the western march of civilization from Indian foray, and notwithstanding its brilliant record, the attitude of a great mass of our people continued hostile to the soldier, so much so that several States and Congress have in recent times had to pass laws to insure respect to the uniform and its wearers in public places. Some of our States, while extending the right to vote to aliens of a few months' residence who have declared their intention to become citizens, deny it absolutely to persons in the military and naval service of the United States, putting them in a class with the criminal and insane.

It is vital that our ideas with reference to military service be regenerated. For our small army we go into the labor market for recruits. When the demand for labor is lax, the stipend of the soldier attracts; when the daily wage goes up, recruiting is at its lowest ebb. There is no appeal to patriotism, no appeal for the individual to obtain military training as the highest duty of his citizenship. Enlistment is held out as a job in which the individual gets small pay but is well cared for, with an outdoor, wholesome life and retirement on three-quarters pay and allowances after thirty years of service, and it is accepted as a job. This view was given added emphasis by the last session of Congress. The national defense

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act prohibits enlisted men from engaging in any civil occupations, whether for pay or otherwise, that would put them in competition with men in civil life. The fine quality of our enlisted men is due to the care in accepting recruits and to the development of character which service under the flag directed by competent leaders gives men, when the realization comes that their lives are committed to the upholding of the laws of the Union. The generally accepted idea that the annual per cent of desertions is a serious reflection upon the discipline and training in the Army is in serious error. The Army will show a smaller per cent of men leaving their contract and job than any business enterprise in the country. The annual return to civil life of thousands who have completed their enlistments, with their views of life settled, to become successful citizens is a superb testimonial to the efficiency of the machine, as well as are the thousands who are so inspired by the life as to take up the duty of a soldier as their vocation.

A few years ago we reached across the seas and assumed responsibilities of insular possessions and alien races. In the interest of advancing civilization we have built the Panama Canal. We have given a fiat to the world that on this hemisphere at least must survive the principle that rulers derive their just powers from the consent of the ruled. We claim an enlightened civilization of over a hundred million people and stand the richest country in the world. As a nation we are devoted to the peaceful avocations of industrial and commercial life. We treat others as we desire to be treated. Few have knowledge of war and fewer still any training for its rigors. We are entering fully into the affairs of the world and as the greatest of nations we must be ready to uphold and protect our institutions.

It is fundamental with a free people that equal opportunities and protection under the law brings equal responsibility in upholding and maintaining the law. Each owes to the body politic his duty not only in civil affairs but also in the defense of the nation. But with us thousands have been inculcated with the belief that wars were to be ended and that the United States should, as the exponent of the highest civilization, set an example in a minimum of military preparedness, and some even advocated the Army and Navy be disbanded. The country became apathetic in the training of its people for national defense. But the awful cauldron of war into which Europe was suddenly plunged has served to awaken us in a measure to a realization that we must believe in ourselves, and as the exponents of a democracy that should regenerate the political systems of the world, we must be ready to hold our place in the councils of the world, and to do this we must be physically fit, or we shall be brushed aside by the vigorous manhood of other races who sacrifice self that the nation may live.

During the months of May and June hundreds of thousands marched in so-called preparedness parades to the plaudits of onlookers. But when the militia was called out in June to protect our border, it was with the utmost difficulty that its units were recruited to the small number required, and some were never filled. The spirit was rife to let somebody else do it. Not only is there evidence of the volunteer spirit being moribund, but the States have for years been unable to make an efficient showing with the militia, even with the generous assistance of the General Govern-

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ment in qualified instructors and supplies. It would seem that the self-reliance of the individual, like that of the States, had given way to dependence upon others. The fine volunteer spirit of the States militia was injured in the demand for Federal pay in time of peace. It sounded the knell of patriotic military training for individuals and commercialized the highest duty that a State can demand from its people. We have fallen away from the teaching of the Fathers, for there is no longer instilled into our people the fundamental doctrine that every man owes a military as well as a civil obligation to his Government.

A young man between 18 and 21 is at the least earning capacity of his career. It is a time of anxiety to the parent and uncertainty for the son. During these years few settle into their life's vocation. They are an expense to their parents; their average earnings will not pay for their board and clothes. They can be given military training without the slightest disruption of business. The stabilizing effect of military discipline and intensive training upon such young men would be of utmost value in forming character and thereby a foundation for their life's work. They would become an asset of incalculable value to the nation, not only in time of emergency, but in the recruitment to industrial life of the thousands returned from military pursuits improved mentally, morally, and physically by the training. The hundreds of military schools in the country are evidence of the faith of thousands of parents that their boys are better fitted for the responsibilities of life by the elementary discipline and drills therein received. The most important function of our regular establishment should be to make it a real training school for our young men, and thereby inspire them with the spirit of patriotism and sense of duty and responsibility with which each generation must be imbued if we are to continue our high mission as a nation.

I shall not attempt in this report to evolve a system to carry out so important a work. It is believed that the average parent would gladly welcome the opportunity for military training for their boys between the ages of 18 and 21. As the training would be educational, there should be no remuneration for service, but the Government should stand all the expense.

If we are to continue to compete with the wage of labor for our soldiers the cost will be enormous if we are to get the men. We hire police, we hire firemen, but there is a repugnance to the idea that we must continue to commit ourselves to no military resource other than that of hiring citizens to accept military training and to commit our future to such inadequate defense.

The justice of, as well as the necessity for, universal training is recognized in section 79 of the national defense act, which prescribes that *in time of war*, "if for any reason there shall not be enough voluntary enlistments to keep the reserve battalions at the prescribed strength, a sufficient number of the unorganized militia shall be drafted into the service of the United States to maintain each such battalion at the proper strength." This provision is intended to keep the National Guard units that have been sent into the field at war strength and is one of the best provisions regarding the National Guard in the bill. What I am contending for is that the principle recognized as applying to time of war should apply equally to time of peace, so that all of the youth of the country who are physically

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qualified for military service should be given thorough military training and discipline under competent officers and noncommissioned officers, so that on the outbreak of war they will be able without much additional training to render efficient service. To send men into battle who have not been given this thorough training and discipline is not only a useless waste of our resources in men but, to anyone who understands anything of the realities of modern war, convicts the people of the country who are responsible for such proceeding of criminal neglect.

THE NATIONAL DEFENSE ACT.

In general terms it may be said that this is the first comprehensive legislation for national defense. It provides for four classes of soldiers in the United States: First, the Regular Army; second, the National Guard; third, the enlisted reserve force, all of which shall exist in time of peace; and, fourth, the Volunteer Army, which will be raised only in time of war. The peace strength of the Regular Army in 1920 is fixed at figures previously stated. The National Guard should consist of about 17,000 officers and 440,000 men. Volunteers can be called in time of war in such numbers as Congress shall authorize.

The increase in the Regular Army is to be made in five annual increments, beginning July 1, 1916, and running to July 1, 1920, although the President is authorized to make the increase more rapidly in case of emergency.

The organizations provided for the Regular Army will be divided into two classes—over-sea and home garrisons. The composition of each of the garrisons in the Philippine Islands, Hawaiian Islands, Panama, and Alaska will be as stated in that policy report and the aggregate will be about three Infantry divisions. This will leave in the United States four Infantry divisions and two Cavalry divisions.

Each Infantry division will consist of three Infantry brigades (nine regiments), one regiment of Cavalry, one brigade of Field Artillery (three regiments), one regiment of Engineers, one Field Signal battalion, one aero squadron, and the ammunition, supply, engineer and sanitary trains. Each Cavalry division will consist of three Cavalry brigades (nine regiments), one regiment of Horse Artillery, one battalion of Mounted Engineers, one Field Signal battalion, one aero squadron, and ammunition, supply, engineer, and sanitary trains. After deducting the necessary troops for the over-sea garrisons, the troops remaining in the United States are just sufficient to organize the divisions mentioned, giving what is termed a well-balanced military organization, because there is just enough of each arm to make a good fighting machine, and there are no extra organizations left over.

The number of general officers of the Army has been increased so as to provide the necessary general officers to command the divisions and brigades and furnish the general officers of the General Staff.

The Adjutant General's Department, the Inspector General's Department, the Judge Advocate General's Department, the Quartermaster Corps, and the Medical Department have all been materially increased to meet the increased size of the Regular Army.

The number of officers in the Corps of Engineers will also be increased and the engineer troops for infantry divisions will hereafter

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be organized into regiments instead of battalions as heretofore, while the mounted engineer troops for use with the cavalry divisions will be in battalion organizations.

The Ordnance Department and the Signal Corps both received material increases. The work of the Ordnance Department in the design and construction of new armament and the greatly increased importance of aviation work necessitated it.

The Medical Department was increased so as to provide 7 officers and 50 enlisted men for every 1,000 of the enlisted strength of the Regular Army and by the addition thereto of a new corps of veterinarians, which corps, together with the Dental Corps, have been given increased rank, with the accompanying pay and allowances.

The organization of Infantry and Cavalry regiments has been changed by the introduction of three new companies, i. e., the headquarters, supply, and machine-gun companies. These companies have existed as provisional experimental organizations, but the personnel had to be taken from other companies of the regiment. Each regiment of field artillery has been increased by a headquarters and a supply company. The organization of the regimental units of these three arms was worked out with great care and represents the very latest improvements known to military experts.

The Coast Artillery has been increased from 701 officers and 19,321 men to 1,201 officers and 29,469 enlisted men, exclusive of bands, on July 1, 1920, giving that corps the complement that it requires in regular officers and men for the harbor defense of the country. The remaining number of officers and men will be supplied from the National Guard.

The Porto Rico regiment has been increased from two battalions to three battalions, and will be organized as other regiments of infantry.

Hereafter officers appointed as second lieutenants in the Army will be given provisional appointments for a period of two years, during which period of probation they must demonstrate their ability and fitness. All new officers will be drawn from graduates of the United States Military Academy, from enlisted men of the Regular Army, from members of the Officers' Reserve Corps, or the National Guard, or from honor graduates of military schools, or, lastly, from civil life.

The condition of retired officers is improved, in that the time which a retired officer may serve on active duty brings to him increased pay and rank corresponding to his period of active service, and in time of war retired officers may be used as the President shall prescribe.

To provide for the regular officers necessary for duty with the National Guard, duty at the various colleges where military instruction is given, for recruiting duty, military attachés, etc., provision is made for a detached officers' list which provides 1,022 officers.

Provision has been made for the retirement of officers of the Philippine Scouts.

The enlistment contract provides for three years with the colors and four in the reserve, but an important addition is that at the end of one year's service any enlisted man within the continental limits of the United States may be discharged if he has become proficient in that time. Provision is made for paying the enlisted men in the reserve $24 a year, and the President is authorized to utilize the personnel of any department of the Government, such as postmasters,

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mail carriers, etc., to keep track of reservists, and also to use the postmasters (except first class) to obtain recruits for the Army.

Enlisted men are prohibited from engaging in any civil occupations, whether for pay or otherwise, that would put them in competition with men in civil life.

An officer's reserve corps is provided which authorizes the commissioning of civilians up to and including the grade of major in the various branches of the Army. These men can be selected and trained in time of peace, and the officers so obtained should be fairly prepared for their duties. In order to assist in obtaining these reserve officers, a Reserve Officers' Training Corps is authorized which will consist of units at the various colleges, academies, and universities throughout the country where military education and training will be given which should give a personnel for the officers' reserve corps that is better equipped for the duties of an officer than any heretofore available.

In order to provide the enlisted men for the various technical staff corps and departments, an enlisted reserve corps has been authorized which will consist of men whose daily occupation in civil life specially fits them for duty in the Engineer, Signal, and Quartermaster Corps, and in the Ordnance and Medical Departments. This enlisted reserve corps should provide the railway operatives, bridge builders, chauffeurs, hospital attendants, nurses, telegraphers, etc., required for the departments and corps mentioned. It is impracticable to keep in the Regular Army the number of men of these classes that will be necessary in time of war, and it is hoped that the enlisted reserve corps will provide the deficiency.

No provision is made for a volunteer force in time of peace, but in place thereof the ideas heretofore embodied in the so-called business men's camps have been provided for, in the provisions that all expenses in connection with attendance at training camps shall be borne by the Federal Government.

The National Guard is within the limits of the Constitution federalized. The maximum number authorized is 800 for each Representative and Senator in Congress, and such number from the Territories as the President shall prescribe. It is hoped that this will give a total of about 17,000 officers and 440,000 enlisted men.

The President is authorized to organize the National Guard into brigades, divisions, and other tactical units, and to prescribe the kind of organizations that shall be maintained in the various States to insure that these brigades and divisions will be complete in all respects. Certain qualifications are required of officers of the National Guard, and although these officers will be commissioned by the governors, they can not be recognized by the Federal Government unless they fulfill the prescribed qualifications. Regular Army officers may be commissioned in the National Guard if the governors so desire. Enlistments in the National Guard will be for six years, three years with the colors and three years with the reserves, but a man may serve out his enlistment, if he so desires, instead of going into the reserve. Hereafter the enlistment contract for the National Guard will contain an oath of allegiance both to the United States and to the State, and not only enlisted men but officers must subscribe to such an oath. The President is not only authorized to call out the National Guard for the constitutional purposes but is also authorized

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under certain conditions to draft them into the service of the United States whether they desire to come or not, and also to draft the additional men that may be needed to keep such National Guard units at war strength, in case the National Guard Reserve is not sufficient for that purpose. Provision is made for the protection of Federal property in the hands of the National Guard.

Horses can be supplied to the mounted organizations of the National Guard, and provision is made for their care and maintenance.

The National Guard will be required to have 48 periods of armory training each year and 15 days' field training, and in case the prescribed amount of training is not undergone the President may withhold the funds appropriated for the National Guard. The Secretary of War may require such additional study on the part of the officers as he deems necessary. During periods of field training the National Guard will be paid at the same rate as the Regular Army, and for the armory training a generous rate of pay is authorized. National Guard officers and men may be sent to various service schools and will be paid during such periods. The National Guard will be subject to the laws and regulations governing the Army of the United States from the time that they are required to come into that service, and after that time there is no evading the Federal law. A uniform system of courts-martial for the National Guard is authorized, the limitations of which are fixed by law. When the National Guard is drafted into the service of the United States they will be entitled to all the rights of the existing pension laws.

To encourage target practice the Secretary of War is authorized to establish ranges and to supply rifles, ammunition, and instructors for rifle clubs in various parts of the country. The initial step in carrying out the law was made in the Army appropriation bill for the current fiscal year, which appropriated $300,000 for the maintenance of indoor and outdoor rifle ranges for the use of all able-bodied males capable of bearing arms under reasonable regulations to be prescribed by the National Board for the Promotion of Rifle Practice, and provision is made for the appointment of a director of civilian marksmanship.

The President is authorized in time of war to exercise a sort of eminent domain over the various manufacturing plants in the country and Government orders are given right of way over all private orders. It establishes in time of peace a board of mobilization of industries, which is authorized to investigate all privately owned plants in the country suitable for the manufacture of arms and ammunition, and the Ordnance Department is authorized to prepare in time of peace the necessary tools of special kinds that are required in the manufacture of arms, ammunition, etc.

The United States is dependent upon Chile as a source of supply for nitrates which are essential to the manufacture of ammunition. The President is authorized to investigate the best means for the production of nitrates and to establish the necessary plants to manufacture nitrates for the Government's use.

The uniform of the United States Army, Navy, or Marine Corps is given protection in that only certain authorized individuals and organizations have the right to wear the uniform or any uniform so nearly like it as to be readily mistaken therefor.

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THE GENERAL STAFF CORPS.

Attention is invited to the tendency to enact laws affecting the personnel of the Army in relation to its stations and duties. Frequently these enactments are not considered at the hearings or debated on the floor of Congress, nor is the War Department given opportunity to show how the military service will be affected thereby, and it sometimes happens that such legislation has an injurious effect upon the service. In this connection attention is invited to the second paragraph of section 5, national defense act, relating to the General Staff Corps. The formation of a general staff had its inception in the blunders made by our staff departments during the Spanish War, and it was to form a supervising, informing, and coordinating staff department of the War Department. It was carefully considered and fully debated in all of its varied aspects, and the organic law stated fully its purpose. The number of officers at first detailed for the General Staff was fixed at 45 as the proper number to perform this new but most important and varied duty. In 1912 the General Staff was reduced by one general officer and eight captains. This reduction seriously interfered with the work of the General Staff, which had been steadily growing in importance, as officers grew to understand its important functions.

The European war has fully demonstrated to the world the importance of a general staff for coordinating in time of peace a comprehensive knowledge of the resources of the Nation—that is, its war power—as well as in the preparation of war plans. The work of preparing the Army, the National Guard and volunteers to carry out effectively and efficiently these plans is an involved and complex study. The collection in advance of all the information necessary for a correct understanding of every problem of national defense is an immense work. General Staff work has to do not only with preparing war plans but consideration of every policy of instruction, equipment, and supply, so as to obviate waste of public funds and secure the best possible results.

After a full and careful consideration of its various duties and responsibilities, the General Staff recommended 94 officers as the number that should compose that body. The national-defense act was passed by the Senate, fixing the number at 92. But as this measure came from conference and as enacted into law the General Staff, aside from its general officers, was increased by 18 officers, to come by increments for the next five years. It directed not more than one-half of the officers detailed in said corps shall at any time be stationed or assigned to or employed upon any duty in or near the District of Columbia, and directs a penalty upon an officer who violates this or any other provisions of the section. It is needless to say that this provision, by its reduction of the available officers for the General Staff work at the War College, has militated seriously against the work of preparing the country for any emergency of war. The law limiting the President in the number of General Staff officers he can order to duty in Washington gives us fewer officers here than at any time in the history of the organization and at the most important time of our military development. Just what end of military efficiency it was proposed to serve thereby it is impossible to conjecture. In the interest of progress in military preparedness it is recommended that all the

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restriction placed in the national-defense act be removed and the General Staff in number be fixed as proposed in the national-defense act as first passed by the Senate.

DETACHED SERVICE LAW.

Congress, upon its own initiative and without the recommendation of the War Department, in the appropriation bill for the Army, approved August 24, 1912, passed a law which required that commissioned officers of the line of the Army below the rank of major should not be detached unless they have been actually present for duty for at least two of the last preceding six years with a troop, battery, or company of that branch of the Army in which the officer is commissioned.

Legislation extending the provisions of the detached-service law for field officers was included in the Army appropriation bill approved April 27, 1915. The laws on the subject are most stringent, and have been very rigidly construed by the department. The law was intended to remedy by legislation the keeping of certain officers too long from duty with troops. Officers who were selected for detached service were frequently kept on such duty for unduly long periods. Having laid down a principle and a general rule for the service, with a penalty to enforce its operation, Congress made exceptions by excluding their application to the Ordnance Department; for officers below the grade of major detailed for aviation duty; for all officers detailed for duty in connection with the construction of the Panama Canal until after it shall have been formally opened; for those detailed in connection with the Alaskan Road Commission, the Alaska Railroad, Bureau of Insular Affairs; permits the redetail of officers above the grade of major in the Staff Corps and departments. The excepting of certain officers from the restrictions of the law has been largely personal legislation, without any special benefit to the service. It has, in fact, created a distinction in detached service which has not made a favorable impression in the service generally. The detached-service law has been in effect now for four years, which has given time to consider its results. In so far as it requires service with troops, the effect has been good, although it has increased greatly the expense of administration with the frequent changes of officers to meet its stringent requirements. It likewise occasions undue expense to the individual, especially so if the officer has a family to take with him; and the majority of our young officers are married men, with the responsibility of growing children. The provisions of the national-defense act, constituting the detached officers' list of 1,022 officers, will enormously increase this expense to the Government and to the individual on account of the greater number of officers affected, for the time available for detached service will be materially shortened.

The War Department is thoroughly imbued with the spirit of the laws on this subject. I believe it would promote very greatly the efficiency of the service, and at the same time make a material reduction in the cost of the military establishment, if these laws were now rescinded and the matter simplified by a law which would authorize an officer entering upon a detail to serve out the four years of the detail and then require him to serve two years with troops

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before he becomes eligible for another detail. A law to this effect, bearing equally upon all departments and upon all officers below the grade of general officer, would materially enhance the efficiency of the service and the satisfaction of the personnel.

It is believed that some such measure will not only relieve the department of much embarrassment but will give the permanency to detached details necessary for efficiency, with the proper safeguards to insure against abuse, and at the same time reduce the cost of detached service by approximately 50 per cent.

THE PERMANENT STAFF CORPS.

Our experience in the War with Spain brought the War Department face to face with the fact that few officers of the regular service had knowledge of the problems of subsistence, clothing, equipment, transportation, sanitation, the vast and complicated business of supplying and transporting an army, caring for the health and strength of the men—matters which require previous training and experience. The policy had been followed that the country relied for its main strength upon volunteers who, when called into the service, brought but little of the knowledge and experience necessary to these important functions. So, having in view the special duties to be performed by regular officers, not only in connection with their own affairs but with the militia and volunteers, the then Secretary of War (Mr. Root) urgently recommended the substitution of a system of details from the line in place of the, at that time, permanent staff and supply departments so as to provide for the training of as many officers as possible in the variety of experience which would fit them for the duties of the staff and the combined service of regulars, militia, and volunteers.

In accordance with these recommendations the act to increase the efficiency of the permanent military establishment of the United States, approved February 2, 1901, provided for the details from the line of the Army to be made in the staff departments and corps of the War Department and no more permanent appointments to be made in those departments. Some changes have since been made so as to provide examinations and give officers advanced rank for detail in the Ordnance Department, but details continue to be made as provided by the original law in the Adjutant General's, Inspector General's, and Quartermaster General's Departments and the Signal Corps except for the Aviation Section. The workings of the law have proved satisfactory in every respect. But as the number of permanent staff officers is steadily decreasing and as the law provides that the heads of these corps must be selected from the permanent officers as long as any such remain a condition will soon arise when selections must be made from a small number and thus limit the range of selection.

Chiefs of bureau can not be removed by a Secretary of War, whereas in the interest of efficient military administration they should be as easily removed as is a chief of staff. The association of the permanent officers of the staff corps with the line is, in most cases, limited to inspections, reading of reports, etc., whereas every officer of the permanent staff should be in close touch with the sentiments and needs of the line. There would result better cooperation and increased efficiency.

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I am of opinion that all the officers of the staff corps, excepting judge advocates, engineers, medical officers, and chaplains, should be transferred to the line. A number of officers equal to those transferred would have to be detailed to perform staff duties. But the total number of officers of the Army would not be increased and all officers would belong to a common body and the struggle between the line and staff brought to an end. Thereafter an officer detailed as chief of a bureau or corps of the War Department should be detailed for four years, unless sooner relieved, and upon being relieved would return to that grade and branch in which commissioned and be not eligible to redetail except in time of war or other national emergency until he shall have served therewith for two years. The law that applies to the Chief of Staff should apply to the chief of every bureau and corps of the War Department, with above exceptions only.

RESERVE OFFICERS' TRAINING CORPS.

The national defense act authorizes the establishment and maintenance at civil educational institutions of a Reserve Officers' Training Corps. The system contemplates utilizing to their fullest extent the facilities of public and private educational institutions of all types at which officers of the Army are or may be detailed as professors of military science and tactics.

In 1915 5,200 students who had completed courses of military training under the supervision of officers graduated from the college type of institution in the United States, and the total number of students who received military instruction that year under officers of the Army in the schools and colleges of all types was 32,000. There are 567 colleges in this country, with an enrollment of 170,000 male students. If all these institutions comply with the provision authorizing the Reserve Officers' Training Corps, there will annually graduate a large number of men trained for reserve commissions. The enthusiastic approval accorded this provision by educators warrants the prediction that a large number of our colleges which now afford no military training to the student will apply to participate in its provisions. The total cost to the United States of the military training of a reserve officer should not be over $1,000 per man. This includes service of training in the Regular Army subsequent to graduation for at least six months. There was some delay in receiving from the printing office the regulations for the Reserve Officers' Training Corps, but these are now in the hands of all educational institutions interested.

PLAN FOR MILITARY TRAINING IN PUBLIC SCHOOLS OF THE UNITED STATES.

In paragraph 6, "Statement of a Proper Military Policy for the United States," it was shown that our military system should be able to furnish at the outbreak of war 500,000 trained and organized mobile troops, and to have available not less than 500,000 more 90 days thereafter. In addition, to supply losses and wastage in war, it was considered that, after the outbreak of hostilities, the system should provide a plan for raising and training 500,000 more.

To prepare for this task requires us to use every available means of educating the young as to their future duties as citizens.

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If our democracy is to endure it must "recognize as its primary standard of duty the obligation of the individual man and woman to sacrifice themselves for the whole community in time of need."

The necessary elementary instruction that every young American should have in order to be prepared when the time comes to play his part in the national defense can be partially given in the public schools. Moreover, this can be done in such a way as to enlist parental approval, because of the manifest improvement of the scholars in physique, deportment, and obedience to authority at home as well as at school.

The object of the prescribed course of instruction is to inculcate high ideals and correct views on the duties of the citizen to the State. The training given is along military lines, but is so conducted as to encourage initiative and individuality, to correct defects and develop natural gifts, and to teach self-control by showing the value of obedience to superior authority. The old method of "breaking the will" by insisting on blind, unreasoning obedience to arbitrary rules is replaced by one showing how to use the individual will in attaining the concerted effort known as "teamwork," which is the secret of efficiency, and which is dependent upon a conscious and willing obedience to a superior directing authority. Those who learn how to obey fit themselves to direct and by practicing self-control become imbued with the fundamental principle underlying good citizenship. This is not a theoretical scheme. It is a practical system carefully worked out by Capt. E. Z. Steever, United States Army, and applied with marked success in the public high schools of the State of Wyoming. It has been designated the "Wyoming plan," and its distinctive features are outlined in what follows.

The Wyoming plan.

The Wyoming school authorities hold:

1. That good citizenship involves a willingness on the part of each able-bodied youth to make such effort and sacrifice as will prepare him for his obligations and duties as a citizen.

2. That this preparation embraces the following: (*a*) Military preparation; (*b*) Moral preparation; (*c*) Civic preparation; (*d*) Business preparation; and (*e*) Educational preparation.

(*a*) *Military preparation.*—It is unsound to assume that any system of training its adolescent youth will remove from the nation the further responsibility of training its manhood.

Trained youth can not take the place of trained manhood. Youths make imitation, but not real, soldiers.

A thorough preliminary military training of its adolescent youth has been recognized in primitive as well as modern civilizations as the first step in the greater training of the tribe or nation.

With the civilized as with the primitive youth the "game" is the medium of all successful training. "Competition" is to youth what "security" is to old age.

According to the Wyoming plan all cadets are organized into competition units.

Leaders take "turnabouts" choosing the members of their units, so that each unit (squad, platoon, or company) is made up of an equal number of strong, medium, and weak lads.

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After final choosing-up these units are fixed and can not be added to nor subtracted from.

All the work is done by competition units.

There are: Wall-scaling units, infantry-drill units, troop-leadership units, scholarship units, field-firing units, camp and field units.

Sponsors are elected from the girls in the mixed school and assigned to the competition units. The sponsors are in every sense members of the cadet organization. They attend all drills, are the leaders in all social functions, and while they do not actually drill the sponsors are entitled to and receive such individual rewards as may be won by their units.

Medals, ribbons, and distinctive marks on the uniform are given each member of a winning unit, the sponsor, of course, included.

Each cadet organization is based on the voluntary enlistment plan. The cadet classes are held generally during and not after school hours, and credit toward graduation is awarded therefor.

Cadet tournaments are held during the school year between the different high schools, to which the public is invited, and at which are held infantry-drill, wall-scaling, field-firing, and camp and field, and troop-leadership competition "games."

From the Wyoming experience is deduced the following system of training adapted to the adolescent American youth. Local conditions will necessarily modify the application of this system, but the general principles on which it is based will obtain in any part of the United States, and will permit the evolution of a practical course suited to local conditions:

1. Cut the school year into separate, short, intensive training periods, working up through preliminary to final competition dates, with the fixed competition units.

2. September 1 to December 31, wall-scaling and calisthenic events; minimum of drill, maximum of body building.

3. January 1 to February 28, troop-leadership competitions, 12-inch Gettysburg war-game map. Include military policy of the United States.

4. January 1 to February 28, minimum of drill, maximum of gallery practice, group competitions.

5. March 1 to May 7, minimum of drill, maximum of range practice, and field-firing competition.

6. May 8 to June 15, minimum of drill, maximum of camp and field problems, competitive between high schools.

7. All through school year, commencing in the spring and running through the following fall and winter, take boys into camp each week-end and harden them to the rigors of camp life. Teach them sanitation, cooking, woodcraft, simple field engineering, plains craft, castrametation, sketching, scouting, patrolling, the service of security and information, and qualify them as guides in their own immediate surrounding territory.

8. Summer camp immediately after closing of school, 14 days.

The organization that puts into effect the "game" idea differs fundamentally from the modern American athletic system. The cadet leaders choose up each in turn so that each fixed competition unit represents a certain proportion of strong, of medium, and of weak lads.

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In football and basket ball and track events, only the *few physically fit take part.* In this system each squad represents an average and *every boy takes part.* There is as much "in it" for the weak as for the strong, and the survival of the fittest units, whether they be squads, platoons, or companies, gives the competition spirit.

(*b*) *Moral preparation.*—A nation stands or falls, succeeds or fails, just in proportion to the high-mindedness, cleanliness, and manliness of each suceeding generation of men.

In the Wyoming system the fundamental factor is the competition between equally balanced units. The individuals are forced by public opinion amongst their fellows to go into training, and this training means clean, moral youths. It is shown conclusively in the various competition that clean men morally are the surest kind of winners. Smoking and immoral practices must go. Under the fiercest kind of competition, and a new and fascinating interest in life, the adolescent youth is better enabled to negotiate that difficult period of life.

(*c*) *Civic preparation.*—It is almost a fundamental principle of correct military organization that the leader should not be voted for. The Wyoming system is not intended to make soldiers. The Wyoming schoolmasters are of the opinion that soldiers can only be made from mature manhood, and that the preparation of the adolescent youth should be such that when he reaches manhood he may then be made into the highest type of soldier. Hence the objection to voting for leaders does not obtain in the cadet organization, whereas the objection is perfectly valid in a military organization.

The cadet leaders are chosen at the beginning of each year by vote of the older cadets. The leaders are selected on merit, very much as the captain of the football team is selected for his merit. It has been noticeable that on the first organization boy politics elect a certain percentage of popular but inefficient leaders, whose very inefficiency is later a terrible punishment to the members of their own units. The stress of competition soon brings out the real leaders. The cadets never repeat their mistake. After the first election they take steps to insure a very wise and careful selection of leaders.

This civic lesson can not be wholly lost to them in years to come, when they are called upon as citizens to elect the leaders of their city, county, State, and National Governments.

(*d*) *Business preparation.*—Teamwork and efficiency are prime requisites in the business life of to-day.

The soldier game can be made the keenest, as well as the most fascinating, of all games, and efficiency is a necessity if a competition unit is to win. Not only must each man be worked to the limit of his capacity, but each competition unit leader must analyze his men and fit each to his proper place. The leaders are always leading and learning efficiency.

There is every reason why the "Wyoming plan" should be taken up by every high school in the country.

TRAINING CAMPS.

Over three years ago Maj. Gen. Leonard Wood, then Chief of Staff, put in operation the plan of camps of instruction for regular troops at which students were permitted to attend for training without cost to the United States. This plan was later enlarged by permitting the attendance of business men at certain of these camps.

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The plan has been most successful as carried on in the Eastern Department, now commanded by Gen. Wood, with a minimum of troops and few officers to call upon for this additional instruction. Camps have been maintained in the Eastern Department as follows:

Plattsburg.—Five camps were held in sequence beginning June 5 and ending October 5.

Oglethorpe.—Two camps were held beginning May 3 and ending June 30.

Fort Terry, N. Y.—One camp was held beginning July 5 and ending August 10.

Fort Wadsworth, N. Y.—Six camps of two weeks' duration each were held beginning May 28.

There was a total attendance at the various camps of 12,200 men and boys, who came from all parts of the country.

In reporting upon these camps, Gen. Wood says:

> The training at these camps is intensive; the work is hard; the food good; the hours regular; the discipline extraordinarily good—there were practically no infractions of discipline. The general tone of the camp is excellent. It is difficult for one to appreciate how absolute the discipline is unless one has served in camp.

Following the Plattsburg plan, camps were also established this year in the Western Department at the Presidio of San Francisco—two camps—and one at American Lake, Wash., with a total attendance of 357 students and business men. A satisfactory camp was also held at San Antonio, Tex, in the Southern Department. The plan has now received official recognition from Congress, and materially increased attendance should ensue at the camps to be held next year. Congress has appropriated money for transportation to and from training camps and for subsistence in kind while at the camps. Appropriation should be made for the issue of a proper uniform while in camp with the privilege of purchase or of turning it back at the expiration of the training period.

RECRUITING REGULAR ARMY.

Between March 15, 1916 (the date active recruiting began to meet the increase in the Army authorized by the joint resolution of Mar. 17), and August 31, 1916, the losses and enlistments were as follows:

	Enlistments.	Losses.
March 15 to 31	1,635	1,079
April	2,873	2,136
May	2,275	2,022
June	3,343	1,495
July	4,354	1,105
August	3,054	1,234
Total	17,534	9,071

This represents a gain of 8,463 during the period mentioned.

On June 30, 1916, the close of the fiscal year, there was a difference of 20,292 between the actual and authorized strengths of the Regular Army, and the increase authorized for the fiscal year beginning July 1, 1916, exceeded that authorized by the joint resolution of March 17 by 13,909, making a total difference between the actual and authorized strength on July 1, 1916, of approximately 34,200. Between June 30 and August 31 the enlistments exceeded the losses by 5,069, leaving a difference on August 31 of 29,130 between the actual and authorized strengths.

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CAVALRY.

All regiments of Cavalry having permanent stations in the United States, excepting the Second, located at Fort Ethan Allen, Fort Myer, and Fort Oglethorpe, have been engaged in arduous patrol duty along the southern border or with the expeditionary force now in Mexico. The sections of the national defense act, which provide for the composition of the various units of the several arms, followed the recommendations of the General Staff, except in so far as these sections provide a minimum strength for these units. The enlisted strength of the Army under this act is limited to 175,000 combatant troops after all increments are added. In fixing the authorized enlisted strength of the Army to include the first increment, it was decided, until all organizations have minimum peace strength, there would be no increase for any unit in excess of the minimum prescribed in the national defense act, and no unit of any branch of the Army would be increased above this minimum at the expense of any other branch. The enlisted strength of Cavalry units and especially the Cavalry troop in the squadron is now less than that needed for proper efficiency. This can only be properly remedied by legislation, which is recommended to provide but one enlisted strength, the maximum, at all times for all Cavalry units. The overhead charges for a Cavalry troop of 70 enlisted men are practically the same as for a troop of 105, both requiring the same number of officers and practically the same noncommissioned officers and barrack accommodation. Some provision should also be made for a training and remount troop in time of active service. This can be done by adding a training detachment to the headquarters troop as now authorized and organizing the training and remount troop only in time of actual field service by assigning thereto the training detachment from the headquarters troop and such officers and enlisted men for other troops as necessary to conduct the work. In maintaining Cavalry organizations on the border it has recently been necessary to send both *untrained* men and *untrained* horses directly to regiments neither at all fit for the hard work required. This has been necessary on account of the reduced strength of these organizations at the front. No trained material being available, it was necessary to fill up the organizations with the best obtainable. Such a policy is, however, a makeshift both expensive and extremely unsatisfactory in its results.

Cavalry equipment.—The model 1912 Cavalry equipment was issued by the Ordnance Department to the entire First Cavalry and to one squadron each of the Third, Fifth, Eleventh, Thirteenth, Fourteenth, and Fifteenth (transferred by the latter to the Eighth Cavalry). Owing to the many complaints received from regimental and other commanders with reference to the unsuitability of various portions of this equipment, a board of officers was convened at Rock Island Arsenal (under the provisions of par. 44, Special Orders No. 211, War Department, 1915) for the purpose of examining and reporting on the relative merits of certain military saddles for the Cavalry service, as well as of considering reports submitted with reference to the Cavalry equipment, model of 1912, and suggested changes therein. The final recommendations of this board have not (as yet) been submitted, and when received will require some months for a thorough tryout before final action. In the meantime, the manu-

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facture and issue of the Cavalry equipment, model of 1912, has been ordered discontinued. In April the Chief of Ordnance reported the supply of Cavalry equipment available for issue, including both the model 1912 and earlier models, as rapidly reaching a point where it would be impossible to meet requests for the ordinary maintenance in the service, and that it was imperative that the manufacture of a limited amount of Cavalry equipment be undertaken at once. The reports received from commanders having the model 1912 equipment emphasized such serious defects in the enlisted men's saddle as to make it clearly inadvisable to continue the manufacture of that equipment unless the Cavalry Equipment Board at Rock Island Arsenal could find a remedy for the defects reported. This board was accordingly instructed to continue the tests of this equipment and submit report as soon as practicable. Reports received from organization commanders on the border clearly indicated that the McClellan saddle was better adapted for field service than the 1912 model. This question was also submitted to the Cavalry Equipment Board at Rock Island Arsenal, which recommended the issue of the McClellan equipment, the Ordnance Department having all appliances on hand for that purpose. After due consideration this recommendation was approved and the Chief of Ordnance was instructed to renew the manufacture of the McClellan equipment in such quantities as necessary to meet current and reserve needs until otherwise ordered.

Cavalry Drill and Service Regulations.—The revision and bringing up to date of the Cavalry Drill and Service Regulations by the board of officers convened by paragraph 29, Special Orders No. 210, War Department, 1915, has been completed, and it is hoped to have these regulations very shortly issued to the service. The 1914 regulations requiring double rank as the normal formation and assuming the regiment to consist of six squadrons of two troops each, commanded by captains, were approved and issued to the Cavalry service October 22, 1914, in accordance with General Orders No. 79, War Department, which instructed each officer to submit on June 1, 1915, a report embodying his opinion and recommendations in connection therewith. These regulations have been in effect since that date. After an extensive try out which included much field service on the southern border, these reports were rendered, and upon being tabulated, it was found that about 90 per cent of the Cavalry officers favored return to single rank as the normal formation with the statutory organization of troop, squadron, and regiment. A large percentage of these officers likewise favored the principle of "leading" upon which the regulations of 1914 were based.

The revision now submitted by the board provides:

1. Single rank as the normal formation with the statutory organization of the various units.

2. Retention of the principle of the 1914 regulations, that mounted units are habitually led in person by their commanders.

3. Provision for double rank for use under circumstances requiring it.

The new manual treats with great detail and thoroughness the training of the recruit and remount. Detailed explanations practically terminate with the platoon, after which drill evolutions and the maneuvering of the troop, squadron, and regiment are but the application of fixed principles and methods laid down for the smaller units.

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Mounted Service School.—This school graduated during the last year 28 officers in the first-year class, 7 officers in the second-year class, and 12 officers in the fall class, field officers' course. No spring class was held for field officers owing to the need of officers with troops on the southern border. Ten noncommissioned officers were graduated. Several members of the different classes failed to graduate on account of unsuitability or inaptitude. Regimental commanders of cavalry and field artillery have been instructed to give careful attention in submitting recommendations for details at the Mounted Service School, having in mind intelligence and character as well as physical skill in order that all students may not only take the various courses with credit but with a view of their afterwards being advantageously employed as experts in the training of both men and remounts.

Now that the Mounted Service School has established beyond question its function in our scheme of military education, and its permanent location at Fort Riley determined, it is believed that a more definite policy of building construction should be approved by the department so as to provide adequately for the needs of a larger school as made necessary by the recent increase in the mounted branches of the service under the national-defense act. Heretofore the school has been more or less dependent for quarters normally required for the garrison of two regiments that are permanently stationed at Fort Riley, but which have during the past few years been on border service. With the return of these regiments additional quarters will be required for the school. In accordance with the recommendations of the Quartermaster General and the commandant, the 1918 estimates will include new construction work covering the more pressing needs of the school.

CAVALRY HORSES.

Some fear has been expressed by officers of the mounted service that shipments from this country of horses and mules abroad were reducing the available stock very materially within the country, as during the period August 1, 1914, to July 31, 1916, over 620,000 horses were exported. In addition to this, 176,000 mules were exported. The Department of Agriculture has kept very accurate statistics of the number of horses exported and definite information concerning their quality, sex, and probable usefulness. Of those shipped about 30 per cent were mares. Many of these were old, and few of the young ones showed evidence of having produced foals and would probably add nothing to the breeding value of the horse stock obtained at home. The loss in good producing mares is negligible, as the farmers prefer to keep this stock at the prices now prevailing. The foreign purchases encourage the type of horse needed for cavalry purposes, and has stimulated rather than restricted their breeding. It is probable that the suitable horses for military purposes will be increased as the farmers have disposed of inferior producers and are recruiting the remaining stock by means of better breeding methods.

The system of breeding horses for the military service conducted by the Bureau of Animal Industry, Department of Agriculture, referred to in my last report should be extended and the necessary

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appropriations made for that purpose. Some of the advantages of this system are:

1. The War Department will know where to find 3-year-old colts of the types desired, and result in the standardization of suitable military types.

2. Resulting foals will all be sired by sound registered stallions and be out of sound mares selected for their fitness to produce foals of the cavalry or artillery type.

3. Unsound and unregistered stallions will eventually be eliminated.

HORSES AND MULES BOUGHT.

As no appropriation had been made for supplying militia troops with animals prior to calling these organizations into field service on June 18, immediate steps were taken to secure the animals needed to equip these troops. Remount stations and purchasing officers advertised for them as extensively as possible. Bids were opened June 26, and contracts awarded June 27, for 42,408 horses and 18,440 mules. Inspection agents at the points of delivery inspected and shipped the animals to the auxiliary remount depots at El Paso and Fort Sam Houston, Tex., where they were held until free from shipping fever, which is prevalent among animals required to undergo railway journey. This quarantine covers a period of about two weeks. Animals issued to troops before they fully recover from this ailment would infect the other animals. Each organization was given a partial supply before attempting to complete the allowance to any one organization. This enabled each unit to be partially equipped until other additional remounts were received.

The following table shows the horses and mules received and issued from the auxiliary remount depots and other points on the Texas border:

	Received.		Issued.	
	Horses.	Mules.	Horses.	Mules.
Auxiliary remount depot, El Paso, Tex.:				
Week ended—				
July 8	351	23	68	.....
July 15	1,092	235	365	151
July 22	2,703	702	429	331
July 29	2,822	1,853	1,160	829
Aug. 5	2,239	1,037	2,857	1,240
Aug. 12	1,712	1,809	792	702
Aug. 19	1,399	448	1,986	857
Total	12,318	6,107	7,657	4,110
Auxiliary remount depot, Fort Sam Houston, Tex.:				
Week ended—				
July 8	1,652	1,620	878	235
July 15	2,161	2,055	479	176
July 22	1,093	2,137	1,997	1,036
July 29	1,831	1,415	1,069	1,831
Aug. 5	1,588	1,421	1,093	1,433
Aug. 12	1,814	1,191	766	910
Aug. 19	563	620	969	895
Total	10,702	10,495	7,851	6,516
Shipped to various posts on the border (Brownsville, Harlingen, Eagle Pass, Laredo, McAllen, Calexico) and issued to troops when released from quarantine	2,787	633	2,787	633
Grand total, shipped and issued	25,807	17,199	18,295	11,259

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FIELD ARTILLERY.

The report of a board of officers convened to make recommendations concerning types of field guns and ammunition supply therefor, as finally approved by the Secretary of War, was based on the necessary equipment for a force of 1,000,000 men organized into 15 Army corps and 4 Cavalry divisions.

Advantage was taken of knowledge and experience gained from reports and observations abroad and in the light of most recent developments in the manufacture and efficiency of the different types of guns, kind of ammunition, means of transportation, improved equipment for fire control in making its study and report, and types of guns have been adopted which conform to the requirements of modern war.

The computation as to the number of guns required is based on an allowance of 4.9 guns to a thousand gross Infantry and Cavalry, instead of 3.1 guns, as formerly.

The full accumulated ammunition allowance is provided for oversea stations and one-half the amount for home stations.

Motor tractors and trucks are provided for the heavier types, and provision is made for all signal equipment, including aeroplanes, necessary to render effective the Field Artillery material.

Under the national-defense act the number of Field Artillery regiments will be increased by 15—3 to be organized each year for five years. The new regiments for this year were organized from a nucleus of trained personnel drawn from old regiments.

The unusual demands during the past year made it necessary to abandon the regular courses of instruction at the School of Fire for Field Artillery. It is contemplated to reopen the school for the regular spring courses and with a more extended program of instruction. The increased ammunition allowance authorized by Congress this year for target practice will insure increased efficiency in fire for effect.

Modern types of observation balloons and heavier-than-air flying machines for use in training and fire control at the School of Fire have been authorized.

The question of the advisability of utilizing motor traction and transport for heavy field artillery has been under trial and experiment for sufficient time to demonstrate its efficiency and economy with the heavier material, and further experience and test will enable more accurate conclusions to be drawn.

It is a matter of satisfaction to cite the interest shown by the National Guard in Field Artillery work and the number of batteries that have been organized. A complete battalion of field artillery was enlisted from students at Yale University, and their progress and interest in the work at the training camp at Tobyhanna, Pa., under a corps of instructors from the Regular Army is worthy of special praise and comment.

The lack of sufficient regular field artillery to meet the demands made on this arm has been emphasized during the past year. It has been impossible to provide sufficient officers for duty as inspector-instructors of the National Guard and for other purposes, and no regular organizations could be made available for the field training of the militia. As a result of the mobilization on the Mexican bor-

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der it became necessary to discontinue the School of Fire for Field Artillery and thus deprive not only the regular personnel but also a large class of officers and noncommissioned officers of the National Guard of the advantages afforded by this school.

The armory training of the Field Artillery of the National Guard has shown a marked improvement over previous years. While only 185 gunners were qualified in 1915, the reports for 1916 show 1,560 qualified gunners, nearly one-third of whom were in the expert first-class grade. The instruction of National Guard officers has not progressed as satisfactorily as that of the enlisted men, and the number who qualified for certificates of proficiency has not been up to expectations.

Only one battery of the National Guard Field Artillery was able to attend a camp for field training and conduct target practice before the mobilization in 1916, and this was made possible because the State defrayed all expenses. An effort was made to secure sufficient appropriations from Congress to conduct camps prior to June 30, but funds could not be obtained in time for use. As a rule, such camps are not profitable unless Regular organizations can attend to furnish instructors and trained horses. The future development of the field artillery of the National Guard must depend upon the degree to which the Regular regiments can assist in their field training. For reasons of economy in transportation it will be desirable, therefore, to station the Regular regiments where they can reach the field artillery training camps by marching.

The appropriation of $200,000 for the fiscal year 1916 to provide forage for horses and pay for helpers for the Field Artillery of the National Guard has had a beneficial effect. At the time of the mobilization the National Guard batteries had on hand 912 horses, 558 of which were purchased from Federal funds or issued by the Federal Government. These horses were distributed among 74 of the 83 National Guard batteries, thus affording a general opportunity for mounted instruction.

Mobile-artillery target practice.—The increased importance of mobile-artillery fire developed by the war in Europe has emphasized the necessity for more target practice, and Congress during the last session provided a much-needed increase in the amounts available for expenditure for this purpose, so that for next year it will be possible to provide a more adequate allowance for the proper instruction of the personnel of the Field Artillery.

COAST ARTILLERY HARBOR DEFENSE.

The national defense act, by its increments of increase, will give the Coast Artillery Corps a complete manning body for the guns and mine defenses of the over-sea fortifications, for all the mine defenses of the home fortifications, and for one-half of the gun defense.

It has been the policy of the War Department to look to the States in which harbor defenses are located to supply one-half of the personnel required for a complete manning for the gun defenses. Up to the present time the coast States have not met their obligations in supplying militia artillerymen. Up to the present time they have supplied less than 50 per cent of their quota. Steps will be taken to

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try and arouse great interest in this matter in the militia of the States concerned.

The increase of armament of recent battleships, by which they carry more powerful, longer range guns than those which have heretofore been installed, has exposed certain cities—harbors of anchorage—to a fire which would not be met successfully by existing fortifications. This led the Secretary of War to direct the War Department Board of Review to revise the approved projects. This board submitted a report on November 26, 1915, covering what it considered the most pressing requirements of harbor defense. These projects will involve:

(*a*) The emplacement of 50-caliber 16-inch guns and 16-inch mortars.

(*b*) The utilization as howitzers of the surplus 12-inch guns now on hand by mounting them on barbette carriages of a special design that will permit of the attainment of a range of 30,000 yards.

(*c*) The initiation of the construction of movable howitzers and an experimental gun on railroad car mount, for defense against hostile landings in unfortified harbors.

(*d*) The provision of 3-inch antiaircraft guns for seacoast fortifications.

(*e*) The abandonment of certain existing seacoast armament that is deemed to be of insufficient military value to warrant incurring the cost of providing a manning personnel or ammunition therefor.

(*f*) The retention of the disappearing carriage as the type mount for direct-fire seacoast guns, except in those instances where special conditions may render advisable the installation of the turret or barbette mount; any type of mount for direct-fire guns to be constructed in future to admit of an elevation of approximately 30 degrees and a motion in azimuth as great as the necessities of the site demand to meet an attack over water or land areas.

(*g*) Increases in the allowances of seacoast ammunition.

When the features of the revision proposed shall have been effected, our harbor defenses will be able successfully to meet any attack which can reasonably be expected from the sea.

In view of the confidential nature of mine-planting work and of the importance of having military control over the crews of mine planters, cable ships, tugs, launches, and other vessels employed with the armies of the United States, it is recommended that legislation be sought declaring the members of these crews "Persons subject to military law" within the meaning of Article II of the Articles of War.

The instruction of Coast Artillery has been somewhat interfered with by the necessity for the detachment of troops for service along the Mexican border, but they have all now been returned to their proper stations. Vocational training has received considerable attention and 1,919 men are reported by the Chief of Coast Artillery as having availed themselves of the opportunities to take vocational courses, which covered instruction of electricians, telephone operators, telegraph and radio operators, engineers, firemen, blacksmiths, painters, plumbers, carpenters, and also in music, map reading, sketching, etc.

In February, 1913, three administrative units called Coast Artillery districts were established, and an additional district in the

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Panama Canal Zone has since been added. The duties required of commanding officers of these districts are analogous to those prescribed for brigade commanders of troops. The fact that the duties are largely technical has led to the policy of appointing to the command of these districts Coast Artillery officers who have been appointed general officers of the Army. Legislation which fixed the number of brigadier generals of the Army did not take into consideration these assignments, but was based upon the necessities of the mobile troops. It is as desirable to have brigadier generals with Coast Artillery training command these Coast Artillery districts as it is unsuitable to use them in command of mobile troops.

It is therefore recommended that the Coast Artillery Corps be increased by brigadier generals to command Coast Artillery districts, the number to be the proportion due the Coast Artillery as a part of the line of the Army, to be filled by the transfer of such general officers of the line who, under past policy, have been appointed from the Coast Artillery, and thereafter appointment of general officers for that corps be made entirely within that corps and none to the line of the Army. These brigadier generals, with the Chief of Coast Artillery, would give the Coast Artillery Corps a proper proportion of general officer appointments.

Ammunition for harbor defenses.—A step has been taken toward securing the full effectiveness of harbor-defense armament by increasing the allowance of reserve ammunition for guns to that corresponding to the accuracy life for one-half the guns mounted in the continental United States and for all the guns mounted in the insular possessions and the Canal Zone. The allowance for mortars has also been materially increased. This proposed increase in the allowances has been met by increased appropriations by Congress, and it is hoped that during the next three years the total allowance will be provided for.

SHORTAGE IN ORDNANCE MATÉRIEL.

The most serious shortage of matériel for preparations for war is that of field and siege artillery, its ammunition, and machine guns. With reference to field and siege artillery and its ammunition, the project therefor in existence since 1911 and known as the Greble Board standards, has been replaced by that known as the Treat Board standards, in which provision has been made not only for a larger number of guns for the men employed, but also for a materially greater allowance of ammunition per gun. While Congress at its recent session made markedly greater appropriations for this class of matériel than in the past, larger appropriations must be made if this project is to be provided for in the next seven years as contemplated.

The large orders placed in this country for foreign Governments have developed a large capacity for ordnance matériel, especially mobile artillery ammunition, of which class the greatest quantities will be required in time of war, but this capacity is far in excess of the peace requirements of the United States, and a large portion must, therefore, inevitably disappear. Every effort will be made to utilize to the best advantage the provisions in recent appropriation acts for developing private capacity for the manufacture of ordnance

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matériel of service design, but the funds available for this are too limited to permit of any marked progress being made.

A part of the improvement that might otherwise be obtained is lost, due to restrictive legislation as to the capacity at which the arsenals shall be operated and as to procurement by purchase. The extent to which special plants can be continued in existence after the European demand ceases, is directly dependent upon the orders that can be given them.

It is therefore recommended that effort be made to increase the appropriations for armament, to continue the provisions of law which aim to retain commercial capacity for production of war matériel, and to remove the restrictions which will result in reduction of this capacity.

In this connection I desire to invite attention to the following extract from my report of last year:

> The history of war will show, almost without exception, that each great conflict has resulted in the introduction of new and powerful weapons and devices for attack and defense. Initial advantages of immense import have been gained by a belligerent who has developed some new innovation against which no immediate defense was adequate. The innovation of yesterday becomes the necessity of to-morrow. The present gigantic conflict waging in Europe is too near in perspective and too obscure in detail to grasp as yet all its manifold lessons, but one of the great outstanding features is the use of large-calibered mobile artillery. Each and all of our observers have been struck with the gigantic results attained by its use, and each and every one emphasizes the necessity of our immediate development along similar lines. In this view I am in thorough accord and earnestly recommend that the necessary steps be taken to this end.
>
> Mobile guns of at least 12-inch caliber mounted on railway carriages or dragged by suitable motors are especially needed for transportation up and down our coast lines to protect our undefended harbors and prevent hostile ships from putting landing parties ashore anywhere on our coast outside of the range of the guns of our coast-defense forts and assist the mobile army in defending the rear of those forts.

As a result of the hearings before Congress appropriation was made for only one mobile mortar and one mobile gun on designs prepared by the Ordnance Department. Many of our harbors are undefended by permanent fortifications. Heavy artillery of mobile type must be obtained to give proper defense to landing places and harbors which otherwise might give access to an enemy.

It is a well-known fact that the resources of England, France, Italy, and Russia were noneffective in producing war matériel required by those countries, and that the industries of other nations are now largely employed in making up this deficit.

There is danger that the procurement of war matériel by the Ordnance Department will be delayed. The fortification act, approved July 6, 1916, provides, in effect, that no purchase shall be made unless the price quoted is within 25 per cent more than the arsenal cost, or in the absence of previous arsenal manufacture, the estimated arsenal cost; except when in the opinion of the President an emergency exists affecting the general welfare. In times of fluctuating and high prices, with manufacturing plants supplied with more work than they can do, as at the present time, this provision might seriously delay the procurement of needed armament unless the President were willing to declare an emergency. The Army appropriation act, approved August 29, 1916, provides, for field artillery, that not more than $5,000,000 out of $10,000,000 appropriated shall be

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used for purchase. As the arsenal capacity on a two-shift basis is not above $3,000,000 for this class of product and as it is very undesirable to run plants on a three-shift basis it is evident that this act alone supplies sufficient work for the arsenals for about 18 months, and it is practically obligatory that a certain amount of the funds under other acts be spent for these same purposes at the arsenals.

The Ordnance Department is using every means to expedite production of artillery. Further speeding will require faster procurement of designs and more rapid manufacture. The former can be obtained only by purchasing foreign designs the nearest to those required that can be procured and regardless of cost. Manufacture can be best hastened by invoking paragraph 120 of the national defense act, approved June 3, 1916, which provides, in effect, that in time of war, or when war is imminent, the President may empower the Ordnance Department to partially or wholly take over such manufacturing plants as may be needed and cause them to be operated in the production of war matériel for the United States. This course would be expensive on account of damages because of contracts in existence, but it is the only method of coercion available. Difficulty will be encountered in getting early deliveries of matériel, as the factories are generally under contract for their capacity for a considerable period ahead. The maximum speeding up of production would also require very large appropriations and contract authorizations at the next session of Congress, and it would be necessary that legal restrictions on purchase in this country and abroad be removed.

I can not emphasize too strongly the vital importance of providing as quickly as possible for our first-line defense all matériel that requires time to design and manufacture.

SERVICE SCHOOLS.

Owing to the acute situation on the Mexican border, the Army service schools at Fort Leavenworth, Kans., the Mounted Service School at Fort Riley, the School of Fire and the School of Musketry at Fort Sill were closed May 10, 1916, and the class graduated as of that date, the student-officers and instructors being sent to join their regiments on the border. Since then several tentative dates have been fixed for the reopening of the schools, but the training of the Organized Militia on the border has been of such paramount importance and the necessity of every officer who could be spared from his organization being required for this purpose has so far prevented the reopening of the schools.

CHIEFS OF INFANTRY, CAVALRY, AND FIELD ARTILLERY.

It is fundamental military principle that the entire Military Establishment, and each of its various components, should have a military head (chief) superior in rank to all under his control, who directly supervises and may be held responsible for its training, efficiency of personnel, and other correlated matters. All staff corps and departments as well as the Coast Artillery now have such a chief. The Cavalry, Infantry, and the Field Artillery have not. Correct military principles and consequently military efficiency require that each of these arms should have such a chief and this chief while so serving

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should have one grade higher rank than any officer of his arm. This chief should be charged with the inspection of his arm and should supervise its training and equipment and all such chiefs should have the same status. If any arm be given an advantage over another, either in the matter of having a chief or in the matter of the official standing of such chief, unequal consideration and treatment and unbalanced military development of these arms will naturally result. For the reasons stated, chiefs of Cavalry, Infantry, and Field Artillery should be provided for those arms as now authorized by law for the Coast Artillery. During the Civil War when American Cavalry was being developed along lines that have influenced all nations in the use of this arm, it became necessary to establish a bureau of Cavalry at the War Department and appoint chiefs of Cavalry also of Artillery of the various large commands.

The developments of modern war have made it equally necessary that we should have chiefs of Field Artillery and Infantry. For Field Artillery there are the many questions incident to personnel, organization, training, equipment, arm, etc., which demand the direct and constant attention of a single head or chief. The same is true for Infantry. It is generally admitted that in any final showdown the mobile army must be the main defense of the country. It is, therefore, important that all branches be maintained on the highest plane of efficiency, and this will be only possible when they are given exactly the same status, viz, a chief directly responsible to the Chief of Staff and Secretary of War. This accords with the recommendation made by the General Staff as well as the views of the line of the Army.

SITUATION ON MEXICAN BORDER.

Villa's attack on Columbus, N. Mex., night of March 8–9, 1916.—The small town of Columbus, N. Mex., with a population of a few hundred Americans and Mexicans, is situated on the El Paso & Southwestern Railroad, about 73 miles west of El Paso, Tex., and 3 miles north of the border. The country is flat and partly covered with mesquite brush, though troops can move in practically all directions, either mounted or on foot, except as prevented by the wire fence along the border.

The troops stationed at Columbus at the time of the attack comprised some 500 officers and men of the Thirteenth Cavalry, which regiment had furnished this garrison since September, 1912. During this period border conditions have varied so greatly that, shortly before the attack, a reduction of the garrison by half had been recommended.

The sector of the border assigned to this command covered about 90 miles and was patrolled by detachments varying in strength depending on the proximity of Mexican forces south of the border. During the months of January and February conditions were very quiet and only small patrols covered the border. Early in March there came rumors that Villa was somewhere near Columbus. The patrols and outposts were strengthened as considered necessary. Orders prohibited our troops from crossing the border to investigate rumors. Numerous Villa sympathizers lived in Columbus and vicinity, and Villa was fully informed of conditions at Columbus, including the disposition of troops.

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Villa's command crossed the border in small parties about 3 miles west of the border gate, concentrated for and made the attack during hours of extreme darkness after the moon had set and before daylight.

In the fight which ensued 7 American troopers were killed and about an equal number wounded. Seventy-eight Mexicans were killed and many wounded. One troop mounted and pursued the Mexicans. Another on outpost duty at the border gate mounted and struck the retreating Mexicans in flank, killing 18. These two troops continued the pursuit of the Mexicans south of the border for 12 miles, discontinuing only when their ammunition was exhausted.

Expeditionary force into Mexico.—As a result of this attack the commanding general, Southern Department, was on March 10 directed to organize a suitable expeditionary force under the command of Brig. Gen. John J. Pershing to pursue Villa into Mexico for the purpose of capturing Villa and preventing any further raids by his band and with scrupulous regard to the sovereignty of Mexico. A command of sufficient size had to be assembled at Columbus, N. Mex. Owing to the nature of the country and the character of the pursuit it was necessary for the force to consist largely of cavalry. The Villa forces were all mounted and capable of making long marches. To have pursued at once with troops then on the border would have left the important border points, Douglas, Bisbee, Columbus, and El Paso, and intervening sections exposed to like raids. Therefore, before the expedition could start on its mission, it was necessary to send to that section the remaining available troops in the United States, which required approximately five days. During this time the first motor transport companies were organized and shipped from eastern points. Gen. Pershing's command crossed the border March 15, and at once took up a vigorous and energetic pursuit, neither men nor animals being spared in the long and arduous marches which resulted in driving the Villa bands over 400 miles southward and killing some 200 or more members. Officers and men of this command are deserving of the highest commendation.[1]

Border conference with Gen. Obregon.—I proceeded from Washington on April 19 to Fort Sam Houston, Tex., arriving on the evening of April 21. My instructions were to discuss fully with Gen. Funston the object of Gen. Pershing's expeditionary force in Mexico, the extent to which it should be concentrated, the number of troops necessary, the extent to which the border could be adequately protected with the troops remaining in the Southern Department, and what, if any, additional troops were needed to meet conditions liable to arise. These matters were thoroughly gone over with Gen. Funston, our conclusions wired the War Department, and special instructions conforming thereto communicated to Gen. Pershing.

On April 24, I was instructed that a conference with Gen. Obregon had been arranged for Gen. Funston and myself to be held at El Paso, Tex., or that vicinity, and we should hold ourselves in readiness to proceed there on receipt of instructions. These instructions were received April 26, and on April 27 we proceeded to El Paso,

[1] A more detailed report of this expedition would have been made, but at this writing the report of the Southern Department and the report of Gen. Pershing have not been received.

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arriving there on the evening of the 28th. Gen. Obregon having previously arrived in Juarez, Gen. Funston and myself, accompanied by our aides, called on him that evening. On the next day, April 29, Gen. Obregon returned our call, and arrangements were made for future conferences, commencing that afternoon.

On May 3 a tentative agreement was completed which was signed by Gens. Obregon, Funston, and myself, and submitted to our respective Governments. Subsequent conferences were held on May 7, 8, 9, and 11. The proceedings and the results of the various conferences were at once communicated in dispatches from El Paso. While the Carranza Government would not agree to ratify the tentative agreement signed with Gen. Obregon, the conference furnished most beneficial results in materially relieving a very acute situation and in demonstrating to Gen. Obregon and other Carranza leaders the pacific intentions of our Government.

It had in every way been most emphatically impressed upon Gen. Obregon that whenever the Mexican Government had demonstrated its capacity, and provided proper protection for our border, consideration would then be given to the withdrawal of our troops from Mexico.

Raid on Glen Springs, Tex.—On the night of May 5, 1916, a detachment of 9 enlisted men stationed at Glen Springs, with Sergt. Charles E. Smyth, Troop A, Fourteenth Cavalry, in charge, was attacked by from 50 to 100 Mexican bandits. Although surrounded and hopelessly outnumbered, this detachment stood off the bandits, suffering a loss of 3 privates killed, 4 wounded, and 9 horses captured. After leaving Glen Springs these bandits proceeded to Deemer's store, which was raided and Deemer carried off as a prisoner.

On May 6, Troops A and B, Eighth Cavalry, from Fort Bliss, Troops F and H and Machine Gun Troop, Fourteenth Cavalry, from Fort Clark, all under the command of Col. Frederick W. Sibley, Fourteenth Cavalry, were ordered to Marfa, Tex., to take up the pursuit and capture or destroy the bandits that had made the attack on Glen Springs and Deemer's store. These troops arrived at Marfa, Tex., May 7. One party of the bandits was surprised and attacked at Santa Anita, Mexico. Deemer was rescued and the bandits driven so far south and punished that the expedition fully accomplished its mission and on May 26 the troops were returned to their proper stations. All officers and men taking part performed this very arduous duty most commendably.

Attack at San Ignacio, Tex.—About 2 a. m., June 15, 1916, Troops I and M, Fourteenth Cavalry, were attacked by a large force of Mexican bandits at San Ignacio, Tex., Troop M having three men killed and one noncommissioned officer and three privates wounded, the noncommissioned officer fatally. These two troops, under the command of Maj. Alonzo Gray, pursued the bandits into Mexico, but being unsuccessful in picking up the trail, returned to the American side late the same day.

Calling out of the militia.—As a result of such raids and attacks by Mexican bandits there were continuous demands from border towns, villages, and ranches for regular troops to insure protection not only for property but for American women and children. With the continued pursuit of Villa bands by the expeditionary force under Gen. Pershing, the attitude of the Mexicans in general became more

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and more embittered against Americans. It is believed that the leaders felt that if the advance of the American troops continued southward into Mexico it would result in actual intervention by the United States, and with such an eventuality they would prefer to force an open conflict. This feeling undoubtedly had its influence in increasing the number of raids, as bandit leaders were able to pick up the necessary recruits either for a small raid by a few men for stealing cattle or for a more extensive one to attack American camps. Owing to this attitude and the occurrence of these raids, it became urgent to provide at once more troops along the border to insure reasonable protection to both life and property as well as to permit Gen. Funston to be able to reinforce Gen. Pershing with a regular force of sufficient size to meet possible attacks. Gen. Pershing's expeditionary force was more or less scattered, with his advance units some 400 miles in Mexico. The entire Regular Army stationed in the United States, with the exception of a regiment of Cavalry and some of the Coast Artillery, was either already distributed along the border or with Gen. Pershing's expeditionary force. There being no regular troops available, the militia of Texas, New Mexico, and Arizona was ordered out May 9. This eased the situation materially, but it was only temporary.

The Mexican leaders became insistent upon the withdrawal of Gen. Pershing's expeditionary force and threatened to attack any of our detachments in Mexico marching in any direction other than toward the American border. Conditions became such that an immediate increase in the border troops was necessary. The only organized force available was the National Guard, which was accordingly ordered out by the President June 18 and the greater part sent to the border as promptly as possible.

The mere calling out of the militia had the effect of completely changing the attitude of the Mexicans, and the presence of this additional force has enabled sufficient numbers of troops to be stationed so as to furnish adequate protection to American homes near the border, which they have been without for from five to six years.

The mobilization of the militia in the large camps established at or near Douglas, El Paso, Fort Sam Houston, and Brownsville has also enabled these troops to receive practical instruction with trained officers under field conditions which would not otherwise have been possible.

THE ORGANIZED MILITIA AND THE NATIONAL GUARD.

According to the latest return of this force, before being called into service 1,451 officers and 6,131 enlisted men belonged to the staff noncombatant branch; 456 officers and 8,084 enlisted men to the Coast Artillery; and 6,682 officers and 109,390 enlisted men to the mobile branches, a total of 8,589 officers and 123,605 enlisted men.

The plan of organizing the mobile troops and the National Guard into 12 tactical divisions has made some progress during the year; however, no division is complete. The division in the State of New York and the division in Pennsylvania are most advanced in divisional organization. On June 30 both were deficient a few auxiliary units. On a divisional basis there is an excess of Infantry units equivalent to 17 regiments, and a deficiency of 52 troops of

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Cavalry, 58 batteries of Field Artillery, 49 machine-gun companies, 12 medical supply detachments, 8¼ battalions of engineers, 26 field hospitals, 17 ambulance companies, and 17 sanitary detachments. There is a deficiency in Coast Artillery of 261 officers and 9,239 enlisted men in order to provide their half of the complete manning of guns of harbor defense elsewhere referred to.

The numerical strength of the National Guard was 18,195 enlisted men below the minimum authorized peace strength. Reports show that only about 43 per cent of the reported strength attended at least 24 drills of one hour per day during the year.

Reports on small-arms target practice are incomplete. Seven States have submitted no report. Of the remaining States only 58 per cent fired range practice; 128 companies of Coast Artillery attended camps of instruction at or near harbor-defense batteries. The reports of 46 of these companies show that only 72 per cent had service practice. Six batteries of Field Artillery attended camps of instruction and one battery had service practice prior to call of June 18, 1916. Six special camps of instruction were held for officers and noncommissioned officers. Other camps which were planned had to be abandoned by reason of the organizations being called into the service of the United States.

The effect of pay for armory service is yet to be determined and can not be judged until the National Guard in the service of the United States has been mustered out and has assumed its normal peace training. The plan of organizing the mobile and auxiliary troops of the National Guard into tactical divisions will be modified, both as to organizations specified and as to geographic distribution in order to adapt it to the national defense act.

There was called into the service of the United States on May 9 and June 18, 1916, 108 regiments and 7 separate battalions of Infantry; 3 regiments, 13 separate squadrons, and 22 separate troops of Cavalry; 6 regiments, 12 separate battalions, and 17 separate batteries of Field Artillery; 3 battalions and 11 separate companies of Engineers; 4 battalions, 16 separate companies, and 1 aero company, Signal troops; 22 ambulance companies and 37 field hospitals. There were already organized on June 18 two Infantry divisions, 19 Infantry brigades, and one Artillery brigade. On July 31 reports show that 110,957 were on the border and 40,139 in State mobilization camps, aggregating 151,096. This aggregate strength was deficient by 4,083 of the authorized minimum peace strength and short war strength by 97,350 men.

Forty-four officers of the Army were commissioned in the National Guard. Called into service were 3 as brigadier generals, 10 as colonels, 27 as lieutenant colonels, and 40 as majors. There were also commissioned of noncommissioned officers of the Army, 34 in the Infantry, 9 in the Cavalry, 7 in the Field Artillery, and 1 in the Signal Corps. Two major generals and 24 brigadier generals of the National Guard, in addition to the 3 brigadier generals commissioned from the Regular Army, were mustered into the service of the United States.

In 11 States from which complete returns are at hand 16,630 officers and men in the aggregate were on the rolls at the date of call. Of this number 1,761, or a little over 10 per cent, failed to report. Of the remainder who reported in response to the call 4,385,

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or about 29 per cent of those examined, failed to pass the required physical examination. From the two causes combined 37 per cent of the aggregate strength at the date of call failed to materialize as soldiers. By these subtractions the original aggregate was reduced to 10,484 officers and men. To these were added 7,950 new recruits without former service, making a final strength of 18,434. Making a comparison by percentages, about 57 per cent of the final strength were officers and men with more or less former training in the National Guard and 43 per cent were without former service or training. These figures will probably hold good approximately for the entire body of the National Guard.

When we consider that the National Guard when called upon was obliged to take with it, at a minimum strength, 43 per cent of men without former service or training, which, when it is recruited up to war strength of 150 men to a company, with its present state of development would amount to 75 per cent of untrained men and these commanded by officers of very limited experience, the conclusion is obvious that it is a very expensive military system, which is no sooner called into service than the department is inundated with requests for the discharge of individuals and Congress is called upon to make provision for families left behind. Discharges from these and other causes were so great that department commanders were authorized to provide three recruiting parties for each regiment mustered into the service of the United States. These parties consisted of a commissioned officer, a noncommissioned officer, and a private, and were maintained at Government expense. The results, however, were so unsatisfactory owing to the lack of recruits that orders have recently been issued to the commanding generals of several departments authorizing them to discontinue National Guard recruiting service when in their opinion the results obtained do not warrant its continuance. This may be illustrated in the State of New York in which the militia organization was very much above the average. From August 2 to September 6 only 351 recruits were secured at an average cost necessitated by the keeping up of recruiting parties of $40 per recruit. This was the cost to merely get the man. The system speaks for itself in dollars and cents, which is readily understood by the average man. In the State of Massachusetts 20 recruiting stations were established; between August 1 and September 25 they enlisted only 189 recruits.

THE MILITIA BUREAU.

The following is taken from the report of the Acting Chief, Militia Bureau:

Under the provisions of section 81 of the amended militia law, the "Division of Militia Affairs in the office of the Secretary of War" formerly constituted by War Department orders as a subdivision of the office of the Chief of Staff, becomes the Militia Bureau of the War Department "under the immediate supervision of the Secretary of War and shall not form a part of any other bureau, office, or organization."

The National Militia Board created by the act of May 27, 1908, is abolished and the President is authorized to assign one colonel and one lieutenant colonel of the National Guard to duty in the Militia Bureau as assistants to the chief thereof.

The officers of the National Guard who can be of most service as assistants in the Militia Bureau are those who have had experience in an administrative

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capacity, particularly as quartermasters and disbursing officers. As a general rule experience of this sort should be a necessary qualification for assignment.

In drafting the provisions of the act of June 3, 1916, it was the evident intention of Congress to exercise to its full extent its constitutional powers to "provide for organizing, arming, and disciplining the militia" within the limit, "reserving to States, respectively, the appointment of the officers and the authority of training the militia according to the discipline prescribed by Congress." The National Guard is federalized as far as it can be federalized under the constitutional restrictions.

This was the desire of the representatives of the National Guard Association as expressed in their hearings before the Committee on Military Affairs of Congress. There is, however, considerable evidence that the construction placed upon the term federalization by these representatives did not involve vesting in the Federal Government the greatest amount of control over the National Guard consistent with the terms of the Constitution On the contrary, a report of a legislative committee of the National Guard Association proposed, in November, 1915, to reduce the already inadequate powers conferred on the Federal Government in the militia law of 1903 by securing the adoption of a constitutional amendment which would place the very important power of determining the organization of the National Guard, now a prerogative of the Federal government, in the hands of the States. The adoption of such an amendment would have resulted in complete heterogeneity in the composition of the militia of the several States and would have destroyed all possibility of developing the National Guard into a force organized to meet the necessities of national defense. Further evidences of the opposition to any real federalization is found in draft of a bill "to provide for the organization, armament, discipline, and government of militia of the United States and to further provide for the national defense" (Committee print, J. 26698–1) which was offered with the sanction of the executive committee of the National Guard Association. The outstanding feature of this draft was the creation of a militia section of the General Staff, composed entirely of National Guard officers, with powers so extensive as practically to insure the control of the National Guard by its own members and to destroy such power as was possessed by the War Department to control the training of the militia as an effective Federal force. The tendency of the proposed legislation may be gathered from certain provisions here mentioned. The scope of the examinations to determine the fitness of candidates for commission in the National Guard was to be determined by the militia section of the General Staff, the examinations themselves to be conducted by boards appointed by the governors of States or Territories. Regulations fixing the standard of military fitness which should entitle members of the National Guard to Federal pay were to be prescribed by the militia section. Although projects evolved by the militia section could not be carried into effect until approved by the Secretary of War, he could not reverse their decision and put into effect plans which appeared to him more effective, but could only interpose his objection and if the militia section persisted, a deadlock would result. These provisions are of importance when considered in connection with the subsequent amendment to the Army reorganization act which was urged for the addition of five militia officers to the General Staff. It is difficult to escape the conclusion that the purpose of this amendment was to create in the city of Washington a body of militia officers in whose hands the control of militia affairs would be vested and through whom a practically complete independence from Federal control would be attained.

Such a result would be deplorable. It would involve the predominance of local interest over the interests of general national defense. Two systems would have been built up, the existence of which, side by side, would have destroyed all idea of the coordinated action under a common control which is the real significance of federalization. It would be almost inevitable that militia officers serving in such a capacity would become the representatives of local interests and the wielders of local influence for the benefit of local interests in national military affairs in much the same way that this function was exercised by a group of National Guard representatives in bringing local influence to bear on the legislation enacted at the recent session of Congress. Their official position would give sanction to their statements, and their nonamenability to military jurisdiction would relieve them from a sense of responsbility for their actions.

It is but just to say that there was not full concurrence on the part of the National Guard in the views of their representatives and in the measures advo-

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cated by them. Probably the provisions of the new defense act as they apply to the National Guard much more nearly conform to the ideals and sentiments of the National Guard as a body than the original measure proposed by the committee of National Guard representatives.

It is believed that under the act of June 3, 1916, the powers of Congress to vest control over the National Guard in the Federal Government have been practically exhausted. Every power that can be granted to the War Department has been conferred, and the needs of the National Guard in respect to compensation have been met. This leaves no further material legislative changes to be sought to increase the efficiency of the system. A failure to attain a reasonable degree of efficiency with the facilities provided will be attributable only to defects too inherent in the militia system to be subject to correction by legislative action.

MOBILIZATION OF THE ORGANIZED MILITIA AND NATIONAL GUARD.

Organizations of the militia and National Guard of the States of Arizona, New Mexico, and Texas were called into the service of the United States on May 9, 1916. These organizations were directed to proceed from the home rendezvous direct to their border stations.

On June 18, 1916, the Organized Militia and the National Guard of all the other States were called into the service and directed to assemble at their State mobilization camps. The movement from the company rendezvous to the State camps was under the control of the State authorities and from those camps to the stations designated on the border under direction of the War Department. These troops began leaving their mobilization camps June 27 and on July 1 there were en route to the border from various sections of the United States 122 troop trains, carrying over 2,000 passenger and baggage cars, with a total strength of 36,042 men. Four days later 101 troop trains were en route to the border; 56,681 militia troops were either at the border or en route to the border. Up to July 31, 112,000 militia troops were transported to the border.

The task imposed upon the railroads of the country involved 350 trains to carry the first 100,000 men. Over 3,000 passenger cars were provided and, in addition, about 400 baggage cars, most of which were equipped as kitchen cars for serving hot meals en route, 1,300 box cars, 2,000 stock cars, and 800 flat cars. This call upon the railroads came at a time when their passenger traffic was at its height. All railroads concerned gave preference to troop movements over other travel. The distance traveled by the militia organizations was from 600 to 3,000 miles, the majority of these troops being carried over 2,000 miles. It was impracticable to furnish tourist sleepers for all the troops, but over 600 tourist and standard cars were made available for the movement. In cases where tourist cars could not be furnished, day coaches were supplied at the rate of a double seat for each man where the distance was long. Wherever tourists could be secured en route they were placed in the train and men transferred from coaches to these tourists up to the number that could be berthed. Official reports from all departments show that no organization moved in coaches with less space than three men to every four seats. The average number of men transported in coaches was 30 to the coach. When we consider the great distance traveled, the celerity with which trains were moved, and the entire absence of congestion or delay, it is believed that there has been no case in our history where troops have been so well and safely transported. Especial credit is due the transportation division of the Quartermaster Gen-

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eral's Office for bringing about the cooperation which existed among the transportation companies. Over a year ago the matter was taken up by the head of that division, who outlined the plan of mutual cooperation before several of the transportation associations and brought about the establishment within the American Railway Association of a committee on military transportation with a view to coordination and cooperation between the railroads and the War Department in the transportation of troops and supplies for the United States.

Immediately after the call for mobilization of State troops arrangements were made through this committee for placing a competent railroad official at each department headquarters, at each mobilization camp, and the office of the Quartermaster General, who could act as advisers to the quartermasters at these various points on matters affecting rail transportation. In this way the railroad equipment of the country became available to effect this movement in the most expeditious manner possible.

A series of placards was adopted by which cars of Government freight were given the right of way from point of origin to point of destination and were placed in fast-moving freight trains to point of destination where immediate delivery was made, the placards themselves serving to identify all shipments. The placards showed the department to which the supplies belonged and all information of the car and contents. In this way many shipments have been sent from Washington and vicinity to the Texas border in 4 days; and from the Lakes to the border shipments have been made in a little more than 48 hours. This cooperation of the railroads has been rendered without hesitation, without additional charge to the Government, and with all the energy possible. This placard, with the full cooperation of the railroads, has removed one of the principal sources of criticism applicable to the mobilization in 1898. With the plan of cooperation now working with the transportation interests, the problem of rail congestion has been eliminated and it is not believed possible to repeat the mistakes of 1898. The cooperation of the American Railway Association representatives, with their knowledge of transportation conditions, eliminated a great deal of trouble heretofore experienced in the mobilization of large bodies of troops, and the War Department is highly appreciative of this voluntary and able assistance.

Subsistence.—When the National Guard is called into the service of the United States they are subsisted at the expense of the Government from time of arrival at company rendezvous, but it is supervised and provided for by the military authorities of the State and also at State mobilization camps until sworn into the service; then they come under the supervision and control of the Federal authorities and are subsisted as are other troops of the Regular Army.

When these troops were transported to the Texas border, kitchen cars or baggage or box cars, furnished with range installed, were provided with each train by which the food could be prepared. When ready for transportation 10 days' rations were furnished to make the journey to destination and afford them a small supply in addition for emergencies.

The subsistence of the soldier is of vital importance as conducive to his health, contentment, and efficiency. Our Army ration is the

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most liberal of that of any in the world, notwithstanding that complaint was occasionally made as to the poor quality and insufficiency of food furnished various militia organizations. Each case of complaint was investigated thoroughly and the records indicate that practically all were unfounded or due to the inexperience of cooks of the National Guard or lack of experience and training of these organizations in taking care of themselves. Extensive inspections of the National Guard have borne testimony to the thorough and satisfactory manner in which troops have been subsisted in Texas and on the border.

Rolling kitchens.—All European nations use some type of rolling kitchen by which men, after the fatigue of march or action, can be quickly furnished with hot soup or other substantial diet. A number of experiments or tests of various types have been made during the year. An American type has now been procured and shipped to the Southern Department for elaborate field test. These tests should result in the adoption of a type as good as any in existence.

Field shoes.—The constant service on the border has demonstrated that our regulation shoe was too light and did not possess the necessary wearing qualities for service in the field. As a result of an experiment with 600 pairs with uppers made of undressed side leather and soles of adequate thickness and provided with hob nails, made upon the lasts as heretofore used in the manufacture of Army shoes, it is believed that a proper field shoe has been obtained. The Quartermaster Department is now purchasing 365,000 pairs which are being sent to the troops as fast as accepted from the factory.

Uniforms.—The impossibility of importing dyes which have been used to produce the fast color and shade in the olive-drab woolen and cotton fabric entering into the manufacture of material for uniforms for the Army for a while produced a serious situation, but manufacturers now claim to be able to produce suitable dyestuffs in the United States.

Motor transportation.—In 1907 the first motor truck for carrying supplies was purchased. Since then there has been constant progress in developing the motor truck as a means of transportation. During the early part of 1916 motor transportation was confined to operation of trucks in transporting supplies to outlying camps on the border. When instructions were given for the organization of a force to cross the Mexican border in pursuit of the band which attacked the town of Columbus, N. Mex., there was received a request from the Southern Department for two motor-truck companies of 27 trucks each of 1½ tons capacity, equipped with the necessary personnel for their operation. Two additional truck companies, as well as the necessary tank trucks, followed soon after. It was the use of motor trucks which made possible the long advance of this expeditionary force into Mexico. There was such an increase in the demand for motor trucks that on June 30 there were in use 588 motor trucks, besides tank trucks, motor machine trucks, and wrecking trucks. It is reported that the approximate cost of operation of trucks per ton-mile is 70 cents, which includes all incidentals such as upkeep of repair shops, roads, etc. Motor trucks will remain an important factor of transportation in our Army, as they have in every other army.

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HEALTH OF THE ARMY.

The general health of the Army was excellent during the year. There were no epidemics or unusual incidents of infectious diseases.

The mean strength of the entire Army for the calendar year 1915, upon which the statistics contained in the Surgeon General's report are based, was 103,842.

The admission rate for the entire Army during 1915 was 726.19 per 1,000, as compared with 660.45 for 1914. With the exceptions of 1914 and 1913, the 1915 admission rate is the lowest in the last 10 years and shows a marked decline since 1906, when it was 1,188.

The noneffective rate for the entire Army for 1915 from all causes was 25.22 per 1,000 (for disease alone, 20.85), which is slightly higher than that for 1914, the lowest noneffective rate in the history of the Army, but still much below the rates for any preceding year, except 1913, when the rate was 23.98 per 1,000. This rate during the past decade shows a steady reduction. In 1906 the noneffective rate was 47.86.

There were eight cases of typhoid fever in the entire Army during the year 1915, only four of which occurred among troops serving within the continental limits of the United States.

There were no deaths from typhoid fever during the year.

The noneffective rate for this disease was 0.02 per 1,000.

All of these cases, with one exception—a recruit—had been vaccinated against typhoid fever, with intervals elapsing between the time of vaccination and the onset of the disease varying from 8 months and 18 days in the shortest period, to 4 years 7 months and 2 days in the longest. The average interval for the year 1915 was 2 years 2 months and 10 days. The average interval for the past 3 years was 2 years 1 month and 5 days.

The admission rate from alcoholism and its results for the entire Army during the year was 12.68, as compared with 13.64 in 1914 and 13.54 in 1913. This rate is the lowest in the history of the Army and shows a steady diminution since 1907.

The death rate of the entire Army for 1915, from all causes, was 4.45 per 1,000, compared with 4.40 for 1914, which was the lowest mortality rate in the Army for many years. The death rate from disease was 2.53 per 1,000 for 1915; the same rate for 1914 was 2.35, and that for 1906 was 3.77.

The discharge rate for the year from all causes was 14.06, somewhat higher than for 1914, when the rate was 12.78 per 1,000, but still markedly less than the discharge rates prior to 1910, when they ranged from 16.64 upward.

The total losses of the Army from all causes (deaths, discharges, and retirements) was 18.03 per 1,000 for 1915; for the year 1914 it was 16.86, the lowest in the past decade.

Malarial fevers show the lowest noneffective rate in the history of the Army, 0.54. In 1906 the noneffective rate for malarial fevers alone was 2.55 per 1,000. The decade following that year has demonstrated the effectiveness of the antimalarial measures that have been unceasingly employed by the sanitary officers of the Army each year, exhibiting, with but two exceptions, a marked decrease in the incidents of the disease.

The record in the Philippines has been specially creditable compared to former years, though here, as in Panama, the Medical De-

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partment has been seriously handicapped at several posts through lack of screening due to insufficient appropriation of funds.

The highest noneffective rate, for disease, for the year 1915 was among the troops stationed in China, 31.79 per 1,000. Then follows Panama with 21.66; the Philippine Islands, 21.42; the United States, 20.90; Porto Rico, 20.57, and Hawaii and Alaska with the lowest noneffective rates for the year 1915, 16.20 for Hawaii and 6.02 for Alaska.

Paratyphoid fever.—Nine cases of paratyphoid fever occurred in the entire Army during the calendar year 1915. Three of these cases were reported from the Philippine Islands and one from the Hawaiian Islands, leaving but five distributed throughout the United States.

The Acting Surgeon General states:

> Paratyphoid fever is a distinct clinical entity and is not typhoid fever, though sometimes resembling typical cases of that disease. It is caused by a different micro-organism, the bacillus paratyphosus, of which two types are distinguishable: *B. paratyphosus "A"* and *B. paratyphosus "B"*. In western Europe, as reported, paratyphoid fever is much more frequently due to the "B" type of bacillus than to the "A" type. Clinically they are hardly distinguishable, but it is stated that the "A" fever is apt to last three or four days longer.

Paratyphoid fever, heretofore but infrequently met with in our Army, appeared in the New York division of the National Guard, stationed in the Brownsville district in August, 1916, principally among the troops at Mission, Tex. A few scattering cases at other points occurred in the same district, in all, a total of about 120 cases. It is probable that this portion of the State of Texas contains many carriers and foci of paratyphoid fever.

The outbreak of this disease was promptly and satisfactorily met. The vaccination against paratyphoid fever with mixed paratyphoid "A" and "B" vaccine, prepared in the laboratories of the Army Medical School, was immediately authorized and the searching of carriers of the disease was vigorously prosecuted, camp sites were changed and all sanitary orders rigidly enforced under the direction of inspectors of the Army Medical Corps.

The results of these measures were immediately successful in checking this outbreak. The disease as it manifested itself in the New York division of the National Guard was generally very mild in character and no deaths occurred.

THE HOSPITAL TRAIN.

With the movement of the militia to the border, the majority of whom had been suddenly removed from the comforts and luxuries of civil life and stripped to the bare necessities of fighting men, bringing the force along the border to about 150,000 men, it was inevitable that a certain amount of sickness and disability would occur. Camp hospitals were established at certain points, larger (base) were located at El Paso and San Antonio. Motor and animal drawn ambulances were provided for the transport of the sick and injured from the field to the near-by camp hospitals. The trivial cases, or those requiring only short periods of convalescence, were cared for in the camp hospitals and the more serious cases transferred to the base hospitals. A certain proportion of the latter cases which required more invigorating climate and changed sur-

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roundings were evacuated to the interior general hospitals at Washington, Hot Springs, San Francisco, and elsewhere. Provision was made for long-distance trips along the border and in the interior by a hospital train. The hospital train consisted of 10 modified standard Pullman cars, constructed at the Pullman shops and designed jointly by a medical officer of the Army and the supervising constructor of the Pullman shops. This new train is different from those of the Spanish War, which were standard Pullman cars, practically without modification. The total capacity of the new train is 76 bed cases and 120 ambulance cases. Wherever the Pullman equipment has been removed, the regulation Army medical equipment has been substituted. The use of hospital trains in active warfare is of modern development and very necessary for proper care of the sick and wounded.

PHILIPPINE SERVICE.

The details of administrative matters, which in every department of government are left to the responsible head, are, for the War Department, often confused by limitations injected in appropriation bills. To illustrate, the Army appropriation act, approved March 4, 1915, provided "That on and after October first, nineteen hundred and fifteen, no officer or enlisted man of the Army shall, except upon his own application, be required to serve in a single tour of duty for more than two years in the Philippine Islands, nor more than three years in the Panama Canal Zone, except in case of insurrection or of actual or threatened hostilities."

Previous to this time, the War Department had fixed upon three years as the tour of duty for the Philippines for officers. This decision was based upon reducing the cost of the upkeep of this garrison to a minimum, and increasing the efficiency of troops to a maximum. Regiments had been made permanent; this was done not only to reduce the expense of upkeep, but because the plan of changing regiments once every two years had been given trial for 14 years, with results that it was found practically impossible to maintain in the Philippines any military organization well prepared for duty which might be required in case of invasion.

About the time of the regulation of the matter by Congress, applications by officers for Philippine service had become so numerous that the Secretary of War had decided that in order to give all an equal chance that officers should go on a roster and take their turn.

The present law is very disrupting to the efficiency of the service, expensive to the public funds in the carrying out, and it is involving many of our young officers with families in serious financial problems. Every officer in the Philippines must change station at least once every two years, and they may be detailed on staff and other duty while there, and then return to a camp station on the border, with the only provision for their family in rented rooms in houses in a near-by town. For the young married officers of limited income this frequent change of station is a veritable curse.

The length of service for the Philippines was fully considered two years ago from every viewpoint, including that of health, and due to the opinion of the great majority of general officers including the Surgeon General, the tour was continued at three years. The

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noneffective rate for 1915 per 1,000 for the Philippines, as previously noted, was only 21.42, as compared with 20.90 for the United States. The present restriction should be removed and the Army permitted to work out such problems in a rational and businesslike manner.

SHELTER FOR TROOPS.

The existing barrack accommodations were built to provide for a minimum strength of 65 for Infantry companies. The national defense act, which raises the minimum strength to 100 and provides additional units to regiments in the machine-gun, headquarters, and supply companies for Infantry and Cavalry regiments, and supply and headquarters companies for Field Artillery regiments, will necessitate the extension of existing barrack accommodations to provide for these increases. This will necessitate increased estimates for barracks and quarters for the fiscal year 1918 to complete the work of extension of existing barrack accommodations in permanent and abandoned posts of the United States for that portion of the first increment of increase to be taken care of in the United States and to provide temporary quarters for that portion of the increment assigned to the Philippines and Panama and permanent quarters to regiments assigned to the Hawaiian Islands. It will be necessary to provide permanent construction for the second increment of increase in the United States and Hawaii and to continue the temporary shelter in the Philippines.

The estimates for construction work pertaining to the military service on the Panama Canal Zone have heretofore been prepared by the Panama Canal authorities, and these authorities will continue to prepare estimates and undertake construction for that portion of the Army there located.

TRANSFER OF GUARDIANSHIP OF YELLOWSTONE NATIONAL PARK TO THE INTERIOR DEPARTMENT.

United States troops have been used in the Yellowstone National Park since 1886 under the provisions of the act of March 3, 1883, to prevent trespass, intruders, etc. It was at first the practice to detail a certain number of troops of Cavalry for this duty. In 1914 it was arranged to use a detachment for this purpose of 8 officers and 200 enlisted men. The Interior Department being charged with the care of national parks, the use of regular troops for police purposes naturally caused conflicting responsibilities between the War and Interior Departments. Since the passage of the act of 1883 conditions have materially changed. The States surrounding the national parks extended the protection of State laws governing killing of game, and the sentiment of communities surrounding the parks became more law-abiding and favored complying with the laws and regulations governing park administration. In the interests of economy as well as the efficiency of the Army, it was deemed advisable to urge the transfer of the guardianship of all national parks to the Interior Department. This was effected for the Yosemite and Sequoia Parks in 1914. The transfer of the Yellowstone National Park was not acceptable at that time to the Interior Department, owing to the lack of appropriations necessary for the employment of civilian rangers. In July of this year the Secretary of the Interior

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advised the Secretary of War that the Department of the Interior was ready to cooperate in making arrangements for the complete withdrawal of regular troops from the Yellowstone National Park, suggesting that the detachment of troops now on duty in the park be retained there until shortly after the close of the present tourist season, between September 15 and October 1, and that specially selected cavalrymen be made available for service as civilian rangers upon the withdrawal of the United States troops. Instructions were given for this transfer of the guardianship of the park to the Interior Department to take effect October 1. Such enlisted men as are qualified and desire to become rangers will be discharged from the Army for employment by the Interior Department. Movable Government property at Fort Yellowstone has been ordered shipped to other points. The buildings, water system, telephone lines, except those required for use by the Engineer Corps in the park, will be transferred to the Department of the Interior, as was done in the case of the Yosemite and Sequoia National Parks at the time of their transfer.

REVISED ARTICLES OF WAR.

The project for the revision of the Articles of War has been under consideration of the War Department for the past 13 years and before Congress for the past 4 years, and was enacted into law in the Army appropriation act approved August 29, 1916. With the exception of a few articles which take effect immediately, the revision will go into effect March 1, 1917. In the meantime the Judge Advocate General will have the Manual for Courts-Martial revised and distributed through the Army by February 1, 1917, in order that there may be a month available for its study before the new code, as a code, takes effect.

DESERTION.

There were 2,382 desertions reported during the fiscal year 1916, which is 2.40 per cent of the whole number of enlistment contracts in force during the year, which is a decided improvement when compared with 4,435 reported desertions and a percentage of 3.23 for the last year. These figures include the cases in which the charge of desertion was removed as having been erroneously made in which the accused was acquitted and in which he was convicted of the lesser included offense of absence without leave and retained or dishonorably discharged from the service. The following table exhibits the true as compared with the reported percentages for the past eight years:

Year.	Desertions reported.	Charges unsustained.	True number of desertions.	Reported percentages.	True percentages.
1909	4,993	311	4,682	4.97	4.66
1910	3,464	696	2,768	3.06	2.92
1911	2,504	380	2,124	2.28	1.93
1912	3,411	560	2,851	3.00	2.50
1913	4,451	871	3,580	4.15	3.34
1914	3,882	810	3,072	3.10	2.45
1915	4,435	795	3,640	3.23	2.65
1916	2,382	588	1,794	2.40	1.81

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It is believed that a material improvement in discipline was effected in the revised punishment order published two years ago, which made important changes in the regulations governing punishment to be imposed by military tribunals. The statistics of the Judge Advocate General show a very great lessening in the number of enlisted men now placed in confinement in the guardhouse to serve punishments as compared with former years.

AVIATION.

The concentration of forces under Gen. Pershing to protect our border marked a distinct step in military aviation in the United States. It was the first time a tactical unit from this branch was put in the field. There was only one such unit, the First Squadron, San Antonio, Tex., equipped with eight low-powered machines, which, at the time of their transfer to Columbus, had been in service for many months. The altitude up to 12,000 feet encountered in Mexico and the long distances to be covered made this theater a very difficult one in which to operate aeroplanes. Valuable service and a great amount of flying were rendered, but the machines were quickly used up. The appropriation of $500,000 made by Congress March 31, 1916, for the Aviation Section was the largest appropriation that had been made for aviation up to that time. Civilian consulting engineers were obtained in connection with the board of officers of the Aviation Section, and this board recommended the purchase of types of material. Twelve 160 to 200 horsepower biplanes were purchased. These, with other material, gradually equipped the aero squadron with Gen. Pershing in all details—motor trucks, portable machine shops, automatic photographic cameras, machine guns, shoulder rifles, bombs, and other accessories. Difficulty was found with the propellers, due to the high altitude and the dry atmosphere of northern Mexico. Finally a propeller-making plant was established at Columbus and engineering talent all over the country consulted in the solution of the problem, to the end that troubles were satisfactorily solved.

The project for the development of the Aviation Section contemplates 7 aero squadrons for the Regular Army, 12 squadrons for the National Guard, and 5 for the defenses on the coast. The aviation field is a new one to the United States, but the progress it is making in training personnel and in developing material is so far satisfactory.

WASHINGTON-ALASKA MILITARY CABLE AND TELEGRAPH SYSTEM.

This system embraces 2,627 miles of submarine cable and 448 miles of land telegraph lines, 52 officers, and 10 radio stations. Receipts for current business handled during the year were $159,819, and the value of official business at commercial rates amounted to $194,571. The yearly outlay for this system is about $442,000 and is charged against the Army appropriation. There is no sufficient reason for continuing this system at its present cost against Army appropriations, for the reason that land communication with the military garrisons in Alaska can be secured through Canadian lines in combination with our wireless system in Alaska. The maintenance of this system has been a heavy burden upon Army appropriations as well

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as upon the personnel of the Army, requiring as it does a number of officers and about 200 Signal Corps men to conduct the business efficiently and maintain it in operation. In addition to the personnel it has been necessary to maintain a cable ship. For five years effort has been made to have this system turned over to the Post Office Department, as it is of the greatest possible value to the commerce of Alaska, mail service of that country, and to the various departments of the civil government. A bill was introduced in Congress two years ago to turn this system over to the Interior Department. Either the Interior or the Post Office Department had better be charged with the cost and maintenance of these lines than the Army appropriation. It is recommended that further effort be made to have this burden transferred.

SUPPLY DEPOTS.

In 1911 a policy was adopted which established depots of supplies in areas within which troops were to be mobilized in the event of war and retaining in these depots the supplies necessary to supplement and completely equip Organized Militia units should they be called into service. Three field supply depots were established—one in Philadelphia, one in St. Louis, and one in San Francisco. The fundamental idea was that any call for militia would be made in such time as to permit the shipment of supplies from these depots to mobilzation camps in advance of the troops arriving from their company or regimental rendezvous. The lack of complete reserve stores and the desire to decrease expense incident to storage limited these depots to three. The largest of these depots, and the only one of the three recognized by specific appropriations, is the one located at Philadelphia, in which were stores to equip the Organized Militia of 16 States, containing the greater part of the Organized Militia. The inadequacy of this plan was fully demonstrated in the sudden call for the militia on June 18 last to meet an emergent condition on the Texas border. It was deemed necessary to send these troops to the border as expeditiously as possible, as their presence there was necessary to save a vast amount of property and women and children in that section in case a break should have occurred in our relations with Mexico. This hurried call found the principal supply depot at Philadelphia somewhat depleted in supplies, due to lack of appropriation for complete reserve supplies, to the necessity of sending a part of the supplies on hand to the Militia of Texas, New Mexico, and Arizona, and to an increase of 20,000 enlisted men in the Regular Army. The siding facilities at the depot were limited—two sidings each capable of accommodating five cars at a time—so that it was some days before supplies could reach the necessary points of mobilization. It was a physical impossibility to expect supply departments to anticipate the action and have blankets and clothing at mobilization camps prior to the arrival of men and recruits, covering as it did States from Maine to Florida.

These depots were an experiment, but it has demonstrated that in a sudden call for troops, the system of a small number of supply depots for so many troops is an impracticable one for expeditious mobilization. As all calls for the Organized Militia will probably be of a sudden and emergent nature, it seems imperative that supplies

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and equipment of all kinds for each State that are necessary for immediate use in the field should be stored within State limits and where practicable in the storerooms of regiments themselves under the direct control of the inspector-instructors on duty with regiments. Arrangements should be made for reserves of animals. There was no appropriation for horses and mules which had to be purchased after the call. The equipment which can not be obtained on 15 days' notice is that for which general supply depots should be provided. Based upon our experience in this mobilization, a board has been convened to submit a new plan for the supply of National Guard and volunteers when mustered into the service of the United States which when made will be subject to the scrutiny and recommendation of the General Staff.

AUTHORIZED LAND PURCHASES.

The current Army appropriation act makes provision for the acquirement of lots of land for military purposes.

Three hundred thousand dollars is appropriated for the Aviation School and Training Ground at San Diego, Cal. The site has been recommended by a board of officers, and steps are now being taken to acquire it. There was an additional appropriation of $300,000 for other land for aviation purposes in case no military reservations were found suited to the purpose. A board of officers has been appointed to examine the present reservations. Action will be taken as soon as this report is received.

At Fort Sam Houston, Tex., an appropriation of $750,000 was made for the acquisition of additional land for adequate supply depots, for terminal facilities of that post and for the Southern Department. The land is estimated to cost about $300,000. Steps are being taken to acquire the land under consideration.

For Vancouver Barracks, Wash., $100,000 was appropriated to provide suitable target ranges for each arm of the military service stationed at that post. The land was to cost about $70,000. Suitable sites are under investigation by department and post authorities.

For Fort Bliss, Tex., $120,000 was appropriated for the acquisition of certain private holdings now within the target range. Effort is now being made to purchase these tracts within the appropriation. If this fails, condemnation proceedings will be resorted to.

Three hundred thousand dollars is appropriated for the acquisition of the necessary land for suitable ranges for field artillery practice. These purchases are under investigation by the Militia Bureau.

The last Army appropriation act also directed the Secretary of War to investigate and report to Congress as soon as practicable what additional tracts are necessary for permanent mobilization, training, and supply stations for use by the National Guard and by the Regular Army and the probable cost of same. A board of officers is to be appointed to make thorough report upon this subject.

The fortification act approved July 6, 1916, provided the sum of $1,400,000 for the acquisition of sites for coast defenses and this amount is to be applied to the acquisition of the land required at Rockaway Beach. Negotiations are now in progress with a view to the completion of the acquisition of the land as soon as practicable and the initiation of the construction of the defenses as soon as funds may be provided therefor.

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UNITED STATES MILITARY ACADEMY.

Since my last report a law has been enacted by Congress increasing the number of cadetships to 1,332. When that law is in full effect four years from now it is anticipated that it will place about 1,200 cadets at the academy. This increase, although spread over a period of four years, makes it imperative that the erection of the necessary buildings to meet the increase should be started at the earliest possible date. It will require two years and perhaps more in some cases to complete the large buildings after they are started. This coming year's increase can be handled with the present plant, but further increases in the number of cadets call for material increase of accommodations. The superintendent of the academy, in his annual report, submits a construction plan calling for an expenditure of approximately $3,000,000. A board of officers has been appointed to report upon this important matter by December 1.

The growth in size and importance of this institution makes it important, in order to properly maintain the dignity of the position of the superintendent, that he should have the temporary rank of a general officer, whatever his rank may be when detailed to the position. I therefore recommend that the law which now gives him the temporary rank of colonel be changed to give him the temporary rank of brigadier general. The authorized number of cadets at the United States Military Academy, at the time of the passage of the law, June 12, 1858 (sec. 1310, Rev. Stat.), giving the superintendent the grade of colonel, was 282.

INEQUALITIES OF RANK IN MILITARY AND NAVAL SERVICE.

There is every reason that in the military and naval service of the United States there should be such coordination of rank for duty as will not induce invidious comparisons. In both services, where similar interests are involved, they should be considered alike in the enactment of laws. If a superior grade is created for one service, a similar grade should be created for the other, so that all the officers of one service will be on a footing of official equality with officers holding similar commands in the other service and in the services of the world. Otherwise embarrassment results when the two branches are brought in contact with each other and with officers of foreign services. If in all those joint matters in which the Army and Navy are concerned, the Navy, by reason of the possession of superior grades is entitled to outrank the Army, it is easy to see that the Army will, perforce, be looked upon as a subordinate branch.

The act of March 4, 1915, provided the grade of admiral for the commander in chief of the United States Atlantic Fleet, the commander in chief of the United States Pacific Fleet, and the commander in chief of the United States Asiatic Fleet. The second in command of these fleets was given the rank of vice admiral. These grades correspond to the grades of general and lieutenant general in our service. The duties of a fleet commander may properly be compared to those of the commander of a tactical division, of a department, of the commander of the land forces of the United States in the Philippine Islands, the Hawaiian Islands, and the Panama Canal Zone. These officers of the Navy are given this rank only

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during the performance of duty and then return to the lower grade of rear admiral, of which there are 24 on the active list of the Navy. The Navy has no grade corresponding to that of brigadier general in our service, which grade has also disappeared from nearly all the armies of the world. The chiefs of bureaus of the Navy Department are thus superior to all bureau chiefs of the War Department except the two who received the favor of special laws giving them increased rank. The result is that most bureau chiefs of the War Department and all brigadier generals of the line are junior in grade to officers of the Navy performing corresponding duty. An adjustment by Congress of these differences and distinctions and doing away with the grade of brigadier general would materially benefit the efficiency of the military service.

The naval appropriation act for the current fiscal year, approved August 29, 1916, provides for a Chief of Naval Operations, who under the terms of the act shall have the rank and title of admiral, to take rank next after the Admiral of the Navy (Admiral Dewey). The Chief of Naval Operations under the new naval law has duties corresponding to those of the Chief of Staff of the Army, and he is given two grades of rank above the Chief of Staff of the Army. The scope of his authority may be seen from the following extract from the law:

> All orders issued by the Chief of Naval Operations in performing the duties assigned him shall be performed under the authority of the Secretary of the Navy, and his orders shall be considered as emanating from the Secretary of the Navy and shall have full force and effect as such.

A similar law covering the functions of the Chief of Staff would solve many questions and relieve the Secretary of War from the necessity of giving his personal attention to many small details of administration which now take up his time.

In this connection attention is invited to the following provision in the same act:

> That officers of the Marine Corps with the rank of colonel who shall have served faithfully for forty-five years on the active list shall, when retired, have the rank of brigadier general; and such officers who shall hereafter be retired at the age of sixty-four years, before having served for forty-five years, but who shall have served faithfully on the active list until retired, shall, on the completion of forty years from their entry in the naval service, have the rank of brigadier general.

A similar provision for officers of the Regular Army would be very appropriate, otherwise the Army becomes the object of comparison with what may seem to be the more favored branch of Congress.

DELAYS IN PRINTING.

The War Department has experienced frequent and embarrassing delays in obtaining from the Government Printing Office blank forms for use of the Army under ordinary circumstances, and this embarrassment has been greatly increased by the many delays which occurred in obtaining blanks for use of the National Guard while in the service of the United States.

The delay in printing orders and bulletins is the same as that experienced in the printing of the blank forms, and it is probable that the pressure of work at the Government Printing Office is such

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that prompt delivery of the department's printing can not be made. This is especially so while Congress is in session, during which time the congressional work takes precedence of all others. The Public Printer has been uniformly courteous and obliging and has put forth special efforts to meet the needs of the department, and the heads of his several departments have cooperated to the full extent of their ability.

It is recommended that an effort be made to have the present branch printing office materially enlarged so that it will be able to handle the printing of practically all the orders, bulletins, and changes and all of the smaller blank forms that are printed by the department.

To accomplish this it will be necessary to provide much more commodious quarters than it is believed can be provided in the State, War, and Navy Building. Ample provision in the way of space for an office large enough to do the work referred to may be had by removing the office to the building at 1725 F Street NW., which belongs to the War Department, and is now occupied by a branch of the Insular Bureau. Some years ago the War Department branch printing office was located in this building and at that time printed all the desertion circulars and the Army List and Directory, so that there can be no doubt that it would be ample for the purpose indicated.

CENSORSHIP OF INFORMATION IN TIME OF PEACE.

In my report of last year I invited attention to the importance of devising some legal plan for a censorship during time of war. It is reasonable to expect that if the public peace is in jeopardy or our relations with another power become strained, most editors and press associations would refrain from publishing information concerning our troops and material which would be of advantage to the enemy. On the other hand, the press must supply the public with news, and much information will be given out which will interfere with plans for national defense or the preservation of peace within our country. This matter has during the year been very fully considered by the General Staff, by the Judge Advocate General of the Army, and by the Joint Board of Army and Navy officers. As a result of this consideration the view was held that so long as the freedom of speech and press do not permit publications injurious to the public or private morals, there has never been a right to publish matter endangering the safety of the country. In order to give full sanction to this, the passage of a law was recommended to the chairmen of the Judiciary Committees of the Senate and House of Representatives, but no action was taken at the last session of Congress. In order to invite full discussion of this proposed measure, and in the hope that thereby action may be hastened in Congress, the proposed draft is given herewith, as follows:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That whenever in his judgment the defense of the country or the preservation of the public peace requires such action, the President may issue a proclamation prohibiting the publication of any or all information, facts, rumors, or speculations referring to the armed forces of the Government, materials or implements of war, or the means and measures that may be contemplated for the defense of the country, except when such publication shall have been duly authorized, and he may issue such regulations as may be necessary to render such prohibition effective.

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SEC. 2. That after the President shall have issued such proclamation as is authorized by section one of this act it shall be unlawful for any person or corporation, or any officer, director, or agent of a corporation, in his capacity as such, within the jurisdiction of the United States to publish, or cause or procure or willingly or through negligence permit to be published, or to assist in the publication of any information, facts, rumors, or speculations prohibited by the terms of the proclamation or regulations issued under this act, except when such publication shall have been duly authorized under such regulations, and any person who so offends may be punished by a fine of not more than ten thousand dollars or by a term of imprisonment of not more than three years, or both. Any corporation which so offends shall be punished by a fine of not more than twenty thousand dollars; and any officer, director, or agent of any corporation who shall consent to, connive at, or through negligence permit any violation of the provisions of this act by such corporation or by any of its agents or agencies shall be punished by a fine of not more than ten thousand dollars or by a term of imprisonment of not more than three years, or both.

SEC. 3. That when, in the judgment of the President, the defense of the country or the preservation of the public peace no longer requires prohibition of publication, he shall issue a proclamation revoking any proclamation issued under section 1 of this act, and thereafter the pains and penalties authorized by this act, except for violations thereof committed prior to such revocation, shall not be effective until a further proclamation is issued under authority of this act.

MOBILIZATION OF INDUSTRIES.

Section 120 of the national defense act of June 3, 1916, provides that the Secretary of War shall make, or cause to be made, a complete list of all privately owned plants in the United States equipped to manufacture arms and ammunition or the component parts thereof.

The President is authorized, in his discretion, to appoint a Board on Mobilization of Industries essential for military preparedness, nonpartisan in character, and to take all necessary steps to provide for such clerical assistance as may be deemed necessary to organize and coordinate the work.

Section 121 of the same act authorizes the Secretary of War to appoint a board of five citizens, two of whom shall be civilians and three of whom shall be officers of the Army, to investigate and report to him the feasibility, the desirability, and practicability of the Government manufacturing arms and munitions and equipment. The Secretary of War is directed to transmit the report of this committee to Congress on or before January 1, 1917.

The Naval Consulting Board has prepared extensive lists of manufacturing concerns and privately owned plants. Army officers have cooperated with the Naval Consulting Board in preparation of these lists. Inventories of some 20,000 concerns are now being arranged in the office of the Naval Consulting Board. When completed, copies of these lists are to be furnished the War Department.

The investigation required as to the Government manufacture of arms is proceeding through the office of the Chief of Ordnance. This investigation has been delayed on account of the great rush of work due to the calling of the militia into the Federal service and increase of the Regular Army. The committee will be appointed and the report rendered on January 1, 1917, as required.

I have omitted from this report statistics usually embodied concerning the authorized and actual strength of the military establishment, geographical distribution of troops, and information of detached officers and other incidental details, as these matters are fully covered in other reports.

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Attention is invited to reports of department commanders and to the reports of chiefs of bureaus and corps of the War Department as containing interesting detailed information of their respective responsibilities.

H. L. SCOTT,
Major General, Chief of Staff.

To the SECRETARY OF WAR.

REPORT OF THE ADJUTANT GENERAL OF THE ARMY.

WAR DEPARTMENT,
THE ADJUTANT GENERAL'S OFFICE,
October 3, 1916.

SIR: The following report covers the entire fiscal year 1916 and relates to the organization and operations of the Army and National Guard organizations in the Federal service as shown by the records of The Adjutant General's Office, and to the business of that office as a bureau of the War Department.

AUTHORIZED STRENGTH OF THE ARMY.

The strength of the Regular Army authorized by the President under the provisions of the act of February 2, 1901, and of the joint resolution of Congress of March 17, 1916, which latter authorized the President to recruit the line organizations to the maximum strength prescribed by the acts of February 2, 1901, and January 25, 1907, without regard to the limitation of 100,000 men for the line and the Philippine Scouts, imposed by the first-mentioned act, is shown in the following table:

Branches of service.	Officers.	Enlisted men.	Total.
General officers	24	.....	24
General Staff Corps	34	.....	34
Adjutant General's Department	23	.....	23
Inspector General's Department	17	.....	17
Judge Advocate General's Department	13	.....	13
Quartermaster Corps	256	6,403	6,659
Medical Department	[1] 660	[2] 5,388	6,048
Corps of Engineers	248	1,982	2,230
Ordnance Department	85	1,115	1,200
Signal Corps	106	1,472	1,578
Bureau of Insular Affairs	3	.....	3
Professors, United States Military Academy	7	.....	7
Chaplains	67	.....	67
Cavalry	810	17,594	18,404
Field Artillery	262	6,358	6,620
Coast Artillery Corps	747	19,321	20,068
Infantry	1,606	54,443	56,049
Porto Rico Regiment of Infantry	50	599	649
United States Military Academy detachments	.....	632	632
Recruiting parties, recruit depots, and unassigned recruits	.....	6,098	6,098
United States Disciplinary Barracks guards	.....	350	350
Service school detachments	.....	746	746
With disciplinary organizations	.....	110	110
Mounted orderlies	.....	7	7
Indian scouts	.....	75	75
Total Regular Army	5,018	122,693	127,711
Philippine Scouts	182	5,733	5,915
Aggregate	5,200	128,426	133,626

[1] Includes 155 officers of the Medical Reserve Corps assigned to active duty under the provisions of the act of Congress approved Apr. 23, 1908 (35 Stat. L., 66).

The act of June 3, 1916, provides that the enlisted strength of the Medical Department is not to be counted as a part of the enlisted strength of the Army, which is similar to the provision contained in the act of Mar. 1, 1887 (24 Stat. L., 435).

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One of the temporary major generals referred to in the previous annual report was retired from active service December 4, 1915, causing a reduction during the year of one in the number of major generals.

The following increases in the authorized commissioned strength of the Army were authorized by the national defense act approved June 3, 1916, to take effect on the date of the approval of that act: General Staff Corps, 34, resulting from the application of the provisions of section 27 of the act of February 2, 1901, to officers below the rank of brigadier general detailed to the General Staff; Quartermaster Corps, 73, caused by the appointment of former pay clerks as second lieutenants of that corps, and Porto Rico Regiment of Infantry, 19. There was also an increase of 1 additional officer in the Cavalry arm, an increase of 58 in the number of officers of the Medical Reserve Corps assigned to active duty, and 1 additional officer in the Medical Corps. There was a decrease of 1 additional officer in the Coast Artillery Corps, making a net increase in the authorized commissioned strength of the Army during the year of 184.

There was an increase of 370 enlisted men for the Ordnance Department and 17 for the service school detachments authorized during the year, in addition to the following increases authorized by the joint resolution of Congress of March 17, 1916: Infantry, 19,104; Cavalry, 3,446; Field Artillery, 823; Coast Artillery Corps, 302, and Engineers, 40. There was a decrease of 27 in the number of authorized recruits during the year, and a decrease of 6 in the Field Artillery, leaving a net increase of 24,069 in the authorized enlisted strength of the Army during the year.

The authorized enlisted strength of the Hospital Corps was increased 1,376 during the year.

There was no change in the authorized strength of the Philippine Scouts during the year covered by this report.

ACTUAL STRENGTH OF THE ARMY.

The actual strength of the entire military establishment on June 30, 1916, by branches of service, is shown in the following table:

Branches of service.	Officers.	Enlisted men.	Total.
General officers	24	.....	24
Staff corps and departments	[1] 1,206	[2] 12,374	13,580
Engineers	228	1,826	2,054
Cavalry	782	15,160	15,942
Field Artillery	257	5,627	5,884
Coast Artillery Corps	739	18,273	19,012
Infantry	1,607	34,313	35,920
Miscellaneous	.....	9,440	9,440
Total Regular Army	[1] 4,843	[2] 97,013	101,856
Philippine Scouts	182	5,603	5,785
Aggregate	[1] 5,025	[2] 102,616	107,641

[1] Includes 154 first lieutenants of the Medical Reserve Corps.
[2] Includes 4,670 enlisted men of the Medical Department.

COMPARISON OF AUTHORIZED AND ACTUAL STRENGTH.

The following table is presented for the purpose of showing the authorized and the actual strength of the military establishment on June 30, 1916, and June 30, 1915, together with the increases during

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the year and the number of vacancies on each of those dates. It includes the enlisted strength of the Medical Department and the Quartermaster Corps.

	Regular Army.			Philippine Scouts.			Total.		
	Officers.	Enlisted men.	Total.	Officers.	Enlisted men.	Total.	Officers.	Enlisted men.	Total.
Authorized strength:									
June 30, 1916	5,018	122,693	127,711	182	5,733	5,915	5,200	128,426	133,626
June 30, 1915	4,834	97,248	102,082	182	5,733	5,915	5,016	102,981	107,997
Increase during year	184	25,445	25,629	.....	.....	.....	184	25,445	25,629
Actual strength:									
June 30, 1916	4,843	97,013	101,856	182	5,603	5,785	5,025	102,616	107,641
June 30, 1915	4,616	95,765	100,381	182	5,430	5,612	4,798	101,195	105,993
Increase during year	227	1,248	1,475	.....	173	173	227	1,421	1,648
Vacancies:									
June 30, 1916	175	25,680	25,855	.....	130	130	175	25,810	25,985
June 30, 1915	218	1,483	1,701	.....	303	303	218	1,786	2,004

The large number of vacancies (175) in commissioned personnel on June 30, 1916, is due to the fact that the 124 graduates of the Military Academy were not appointed until after the close of the fiscal year and to the increase resulting from the application to the General Staff of the provisions of section 27 of the act of February 2, 1901. That application was authorized by the act of June 3, 1916.

The large number of vacancies in the enlisted force is due to the fact that the authorized strength was materially increased by the joint resolution of March 17, 1916, and during the short period between March 17 and the close of the fiscal year it was found impossible to enlist a sufficient number of men to fill the vacancies occurring from time to time and those resulting from the increase in the authorized strength. Every effort was made, and is being made, to secure a sufficient number of recruits to fill the Army to its authorized strength.

INCREASE IN THE ARMY.

(Authorized by the act of June 3, 1916.)

The act of June 3, 1916, provides for a material increase in both the commissioned and enlisted strength of the Regular Army, and also provides for the federalization of the National Guard. Those provisions of the bill that pertain to this office are mentioned in this report under the subjects to which they relate.

The increases in the numbers of officers and enlisted men authorized by the bill is to be made in five annual increments, with the provision "That in the event of actual or threatened war or similar emergency, in which the public safety demands it, the President is authorized to immediately organize the entire increase authorized by this act, or so much thereof as he shall deem necessary."

Under the provisions of the act cited, the authorized enlisted strength for the fiscal year 1917, which includes the first increment, is as follows:

Infantry	51,224
Cavalry	17,357

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Field Artillery	7,881
Engineers	2,198
Coast Artillery Corps	21,423
Quartermaster Corps	8,000
Signal Corps	3,369
Ordnance Department	1,241
Medical Department	6,614
Service school detachments	752
Military Academy detachments	684
United States Disciplinary Barracks guards	468
Disciplinary organizations	101
Mounted orderlies	29
Sergeants on duty with National Guard	209
Indian scouts	75
Recruiting parties and unassigned recruits	11,539
Total Regular Army	133,164
Philippine Scouts	5,733
Aggregate	138,897

In time of peace the total authorized enlisted strength of the line of the Army is limited to 175,000. Under that limitation the total enlisted strength will be 175,000 for the line (including Ordnance Department) and approximately 42,750 for the staff corps and departments and miscellaneous organizations, making a total of approximately 217,750 for the Regular Army, or an aggregate strength of approximately 223,580 if the enlisted strength (5,733) of the Philippine Scouts is included. Approximate figures are given, because the strength of some of the staff corps and departments is not fixed by the act, but will be fixed by the President from time to time in accordance with the needs of the service. The total enlisted strength of the Medical Department, limited to 5 per cent of the total enlisted strength of the rest of the Army, can not be determined at this time, because the strength of all of the other staff corps and departments is not fixed.

The total number of officers authorized by the act in time of peace is approximately 11,450, including the 182 officers of the Philippine Scouts, while the maximum number of officers authorized would be about 580 more, all the additions being in the Medical Department. The exact number of officers authorized can not be stated, because the number of additional officers varies from time to time, and because the number of retired officers that will be transferred to the active list under the provisions of the act of March 4, 1915, can not be foretold.

The total maximum enlisted strength (war strength) of the Army, including the Philippine Scouts, is nearly 298,000. This figure is approximate and is based on increases in the staff corps and departments in proportion to the increases authorized for the first increment.

The total number of officers authorized for the fiscal year 1917 is 7,252, including 182 officers of the Philippine Scouts.

PHILIPPINE SCOUTS.

There was no change in the organization and authorized strength of the Philippine Scouts during the past fiscal year. The scouts are organized into 13 battalions of 4 companies each, a total of 52 companies of enlisted natives of the Philippine Islands, with a total authorized strength of 182 officers and 5,733 enlisted men.

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GEOGRAPHICAL DISTRIBUTION OF TROOPS.

The geographical distribution of the Regular Army on June 30, 1916, is shown in the following table:

Geographical distribution.	Officers.	Enlisted men.	Total.
In the United States[1]	3,622	67,416	71,038
In Alaska	23	769	792
In the Philippine Islands:			
Regular Army	480	11,404	11,884
Philippine Scouts	182	5,603	5,785
In China	41	1,233	1,274
In Porto Rico	35	679	714
In Hawaii	333	8,112	8,445
In the Isthmian Canal Zone	253	6,846	7,099
Troops en route and officers at foreign stations	56	554	610
Total	[2] 5,025	[3] 102,616	107,641

[1] Includes troops serving in Mexico, it being deemed inadvisable at this time to give the exact number of troops serving in that country.
[2] Includes 154 first lieutenants of the Medical Reserve Corps.
[3] Includes 4,670 enlisted men of the Medical Department.

GEOGRAPHICAL DEPARTMENTS.

There was no change during the past fiscal year in the constitution of the geographical departments established for purposes of military administration. A statement showing the territory embraced in the several geographical departments was printed in the annual report for the year 1914.

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TROOPS SERVING OUTSIDE THE CONTINENTAL LIMITS OF THE UNITED STATES.

The troops serving outside the continental limits of the United States, excluding those in Mexico, at the close of the fiscal year were as follows:

PHILIPPINE DEPARTMENT.

First Company, Second Aero Squadron.
Ninth and Fifteenth Cavalry.
Second Field Artillery.
Fourth, Eleventh, Seventeenth, Eighteenth, Twenty-third, Thirty-third, Thirty-sixth, Forty-second, Seventieth, Eighty-sixth, Ninetieth, Ninety-fifth, Ninety-ninth, One hundred and eleventh, and One hundred and forty-second Companies, and Ninth Band, Coast Artillery Corps.
Eighth, Thirteenth, Fifteenth (headquarters, band, first and third battalions detached in China), Twenty-fourth, and Twenty-seventh Infantry.
Companies K and L, Corps of Engineers.
Companies F and L, Signal Corps.
Field Hospital No. 4 and Ambulance Company No. 4.

HAWAIIAN DEPARTMENT.

Fourth Cavalry.
First Field Artillery.
Thirteenth Band, Tenth, Fifty-sixth, Sixty-eighth, Seventy-fifth, Ninety-first, One hundred and fourth, One hundred and fifth, One hundred and forty-third, and One hundred and fifty-ninth Companies, Coast Artillery Corps.
First, Second, and Twenty-fifth Infantry.
Company I, Corps of Engineers.
Company E, Signal Corps.

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CANAL ZONE.

Fifth Band, Eighth, Fifteenth, Sixteenth, Twenty-first, Fortieth, Forty-fourth, Forty-fifth, Seventy-third, Eighty-first, Eighty-seventh, One hundred and sixteenth, One hundred and nineteenth, One hundred and twenty-fourth, and One hundred and forty-fourth Companies, Coast Artillery Corps.
First Squadron, Twelfth Cavalry.
Batteries E and F, Fourth Field Artillery.
Fifth, Tenth, and Twenty-ninth Infantry.
Company M, Corps of Engineers.
Third Platoon, Company H, Signal Corps.
Ambulance Company No. 8.

The First Battalion, Fourteenth Infantry, and Companies C and K, Signal Corps, are stationed in Alaska.

SECOND LIEUTENANTS APPOINTED.

During the year ended June 30, 1916, 163 second lieutenants, graduates of the United States Military Academy, were appointed to the Army, 23 being assigned to the Corps of Engineers, 33 to the Cavalry arm, 11 to the Field Artillery arm, 31 to the Coast Artillery Corps, and 65 to the Infantry arm. Five civilians were appointed probational second lieutenants in the Corps of Engineers, under the provisions of the act of Congress approved February 27, 1911 (36 Stat. L., 957).

Since June 30, 1916, the close of the fiscal year, 124 graduates of the United States Military Academy have been appointed to the Army. All of them, with the exception of 1 who was not graduated until June 29, 1916, and was not appointed until that date, were appointed to rank from June 13, 1916, the date of the graduation of their class. Of those appointed, 24 were assigned to the Corps of Engineers, 22 to the Cavalry, 10 to the Field Artillery arm, 20 to the Coast Artillery Corps, and 48 to the Infantry arm.

COMMISSIONED OFFICERS IN ACTIVE SERVICE.

On June 30, 1916, there were 4,843 commissioned officers on the active list of the Army. Of these, 1,458 (including 65 chaplains) were general officers or officers of the staff corps and departments, 782 belonged to the Cavalry, 257 to the Field Artillery, 739 to the Coast Artillery Corps, and 1,607 to the Infantry.

Of the 1,458 general and staff officers 1,354 were present for duty, 27 on leave, 4 absent sick, and 73 on detached duty. Of the 3,385 line officers 2,699 were present for duty, 71 on leave, 22 absent sick, and 593 on detached duty.

From the foregoing it appears that 20.26 per cent of the line officers and 7.13 per cent of the general and staff officers were absent from their commands. At the close of the preceding fiscal year 25.33 per cent of the line officers and 11.66 per cent of the general and staff officers were so absent.

The decrease in the total number of officers absent from their commands at the end of this fiscal year, as compared with the preceding year, is due chiefly to the decrease in the number of officers on detached service as shown in detail in the section of this report relating to "Officers on detached service."

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In addition to the officers on the active list there were 128 retired officers under assignment to active duty on June 30, 1916, as is more fully shown elsewhere in this report.

ADDITIONAL OFFICERS.

The Army appropriation act approved March 3, 1911 (36 Stat. L., 1058), provides that every line officer on the active list below the grade of colonel who has lost in lineal rank through the system of regimental promotion in force prior to October 1, 1890, may, in the discretion of the President and subject to examination for promotion as prescribed by law, be advanced to higher grades in his arm up to and including the grade of colonel, in accordance with the rank he would have been entitled to hold had promotion been lineal throughout the arm or corps to which he permanently belongs. It is also provided that officers advanced to higher grades under the law cited shall be "additional officers" in those grades.

From the date of approval of the act to the close of the past fiscal year there had been 76 advancements in grade (51 to the grade of colonel and 25 to that of lieutenant colonel) under the act of March 3, 1911, before cited. The table following shows the grades to which and the arms in which these advancements were made.

Arms of service.	From lieutenant-colonel to colonel.	From major to lieutenant-colonel.	Total.
Cavalry	19	14	33
Field Artillery	2		2
Coast Artillery Corps	6	2	8
Infantry	24	9	33
Total	51	25	76

Of the 76 advancements shown in the foregoing table, 32 were advancements in the cases of 16 officers who were advanced to the grade of lieutenant colonel and subsequently to that of colonel. Twenty-three of the officers advanced were retired from active service prior to June 30, 1916; 2 died; 5 were promoted lineally and ceased to be "additional officers," and 5 were appointed brigadier generals, leaving 25 additional officers in the service June 30, 1916. Of these, 11 were in the Cavalry arm, 1 in the Field Artillery arm, 3 in the Coast Artillery Corps, and 10 in the Infantry arm.

All of the officers advanced in grade had already reached the grade of major. The 25 majors advanced to be additional lieutenant colonels left a like number of vacancies in the grade of major, which caused the promotion to the next higher grade of the same number of captains, first lieutenants, and second lieutenants. Of the 51 lieutenant colonels advanced, 35 left vacancies in that grade and caused the promotion to the next higher grade of the same number of majors, captains, first lieutenants, and second lieutenants. The 16 additional lieutenant colonels who were advanced to be additional colonels did not leave any vacancies in the grade of lieutenant colonel.

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COMMISSIONED OFFICERS WHO HAD CIVIL WAR SERVICE.

The official records show that of the 4,811 commissioned officers (including 154 officers of the Medical Reserve Corps called into active service) on the active list of the Regular Army June 30, 1916, none of them served in the Army, Navy, or Marine Corps during the Civil War otherwise than as a cadet prior to April 9, 1865, the last officer so serving being Col. John L. Clem, Quartermaster Corps, who was retired by operation of law, 64 years of age, on August 13, 1915.

There were 986 officers of the Army, other than Philippine Scouts, on the retired list June 30, 1916. Of these, 310 served in the Army, Navy, or Marine Corps, otherwise than as cadets prior to April 9, 1865. The following table shows, by grades, the number of officers on the retired list of the Army on June 30, 1916, and the number of those officers who had Civil War service otherwise than as cadets prior to April 9, 1865:

Grades.	Officers on the retired list June 30, 1916.		
	Total.	Civil War service.	No Civil War service.
Lieutenant general	3	3	.....
Major general	25	20	5
Brigadier general	183	145	38
Colonel	166	18	148
Lieutenant colonel	94	32	62
Major	183	57	126
Captain	192	22	170
First lieutenant	91	3	88
Second lieutenant	23	.....	23
Chaplain:			
Lieutenant colonel	3	2	1
Major	15	8	7
Captain	7	.....	7
First lieutenant	1	.....	1
Total	986	310	676

It will be seen from the foregoing table that approximately 32 per cent of the officers of the Army on the retired list June 30, 1916, served as officers or enlisted men of the Army, Navy, or Marine Corps during the Civil War. On June 30, 1915, approximately 34 per cent of the officers of the Army on that list had Civil War service.

OFFICERS' RESERVE CORPS.

Provision is made in the national defense act approved June 3, 1916, for an Officers' Reserve Corps, to consist of sections corresponding to the various arms, staff corps, and departments of the Regular Army. As stated in the law, its object is "for the purpose of securing a reserve of officers available for service as temporary officers in the Regular Army, * * * as officers of the Quartermaster Corps and other staff corps and departments, as officers for recruit rendezvous and depots, and as officers of volunteers." The corps is to be organized under such rules and regulations as the President may prescribe. These rules and regulations are printed in General Orders No. 32, War Department, July 28, 1916.

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The organization of the Officers' Reserve Corps is an effort to obtain and train in time of peace the large number of commissioned officers necessary in war or when war is imminent.

Especial inducements to secure trained and educated officers have been made to land-grant colleges, other universities and colleges, and to essentially military schools. When the act has been given full effect, by appropriations made and regulations promulgated, it is intended to supply students under military training at such institutions necessary uniforms, military equipment, and for those recommended by the officer on duty and the head of the institution commutation of subsistence for the last two years of the prescribed four-year course. Additional officers have been provided for detail to these colleges, to bring the military instruction up to the standard which its importance to the nation justifies.

That this is expected to add greatly to the military strength of the country is indicated by a provision in the national defense act that the total number of officers that may be appointed and commissioned in the Reserve Corps from this source is 50,000.

To secure the large number of educated and trained officers for the large armies that will be necessary under existing conditions in war is one of the greatest military problems; and it is hoped that the Officers' Reserve Corps provisions in the national defense act will in time solve it.

Copies of the rules and regulations governing appointments in the corps will be furnished to applicants therefor.

RETIRED ENLISTED MEN.

At the beginning of the fiscal year there were 4,028 enlisted men on the retired list created by the provisions of the act of Congress approved February 14, 1885 (23 Stat. L., 305), modified by the acts of Congress approved September 30, 1890 (26 Stat. L., 504), March 2, 1907 (34 Stat. L., 1218), and August 24, 1912 (37 Stat. L., 575).

During the fiscal year 310 enlisted men were placed on the retired list, 153 of the men on that list died, and 31 were transferred to the list of retired commissioned officers of Philippine Scouts, under provisions of the national defense act approved June 3, 1916, leaving 4,154 enlisted men on the retired list at the end of the fiscal year.

PERSONS QUALIFIED TO HOLD VOLUNTEER COMMISSIONS.

Certificates were issued during the year, under the provisions of section 23 of the act of Congress approved January 21, 1903 (32 Stat. L., 779), in the case of 52 persons who were found upon examination by boards of officers convened for that purpose to be "specially qualified to hold commissions in any volunteer force which may hereafter be called for and organized under the authority of Congress, other than a force composed of Organized Militia." Of these, 10 were from New York, 5 from Minnesota, 4 from Washington, 2 from Massachusetts, 1 each from Illinois, Indiana, New Jersey, Ohio, Rhode Island, South Dakota, Wyoming, and the Philippine Islands; 17 were enlisted men of the Regular Army, and 2 were clerks of the Quartermaster Corps, United States Army; 1 was a commissioned officer of the Philippine Constabulary, and 3 were commissioned officers of the Philippine Scouts.

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The board of officers appointed to recommend candidates for appointment as volunteer officers, as provided in General Order No. 42, War Department, 1915, reported on May 18, 1916 (date of latest report), that 658 candidates had been found qualified. These candidates were not required to pass a professional and physical examination, as were the persons to whom certificates were issued under the provisions of section 23 of the act of Congress approved January 21, 1903, but were required to make formal applications, upon a blank form furnished by the department, and to furnish letters and other evidence as to character and qualifications. The following table shows the number of candidates by grade, arm, corps, or department found qualified by the board to May 18, 1916, for appointment as volunteer officers:

Grades.	Adjutant General's Department.	Quartermaster Corps.	Judge Advocate General's Department.	Ordnance Department.	Corps of Engineers.	Signal Corps.	Cavalry.	Field Artillery.	Coast Artillery.	Infantry.	Chaplains.	Veterinarians.	Total.
Colonels	.....	1	.....	....	1	....	8	1	1	32	....	....	44
Lieutenant colonels	1	5	2	1	1	....	5	3	....	35	....	....	53
Majors	2	15	1	3	4	....	12	2	4	54	....	....	97
Captains	.....	31	.....	1	14	2	31	2	1	90	....	....	172
First lieutenants	.....	....	.....	2	22	1	35	6	13	80	....	....	159
Second lieutenants	.....	....	.....	....	6	2	22	4	5	68	....	....	107
	.....	....	.....	....	....	....	.....	....	....	.....	17	9	26
Total	3	52	3	7	48	5	113	18	24	359	17	9	658

Since the passage of the national defense act, June 3, 1916, applications for appointment as volunteer officers are no longer considered by the board of officers referred to. Such applications will hereafter be considered under section 53 of that act, or the candidates will be given opportunity to qualify for appointment in the Officers' Reserve Corps.

This office has a large list of names of students of civil institutions of learning who have been recommended as qualified, subject to future physical examination, for appointment as volunteer officers. These are graduates of civil institutions of learning at which officers of the Regular Army are detailed as professors of military science and tactics, who have been recommended by those professors as especially qualified for military service, and students who have attended two camps of instruction and have been recommended by the camp commanders for appointment as officers of Volunteers.

A list of civilians who have tendered their services in case of war, or who have been recommended for such service, and who seem to have special qualifications, in a civil capacity, is kept in The Adjutant General's Office.

Many tenders of service by organizations and offers to raise companies and regiments were received during the year, all of which were acknowledged and noted.

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OFFICERS OF THE ARMY DETAILED AT CIVIL EDUCATIONAL INSTITUTIONS.

The laws and regulations governing the detail of officers to civil educational institutions as professors of military science and tactics are published in General Order No. 70, War Department, November 18, 1913. Under those laws and regulations 94 officers (61 on the active list and 33 on the retired list) were serving as professors of military science and tactics on June 30, 1915. On June 30, 1916, 95 officers (63 on the active list and 32 on the retired list) were thus on duty.

As a result of the annual inspection of the military departments of educational institutions at which officers of the Army are detailed as professors of military science and tactics, the following-named institutions, arranged alphabetically, were announced in a bulletin, dated June 17, 1916, as the 15 "distinguished colleges" and the 10 "honor schools" whose students have exhibited the greatest degree of military training as compared with others of their class:

DISTINGUISHED COLLEGES.

University of California, Berkeley, Cal.
Cornell University, Ithaca, N. Y.
University of Illinois, Urbana, Ill.
Kansas State Agricultural College, Manhattan, Kans.
University of Minnesota, Minneapolis, Minn.
University of Missouri, Columbia, Mo.
Norwich University, Northfield, Vt.
Ohio State University, Columbus, Ohio.
St. John's College, Annapolis, Md.
The Citadel, Charleston, S. C.
Agricultural and Mechanical College of Texas, College Station, Tex.
University of Vermont and State Agricultural College, Burlington, Vt.
Virginia Military Institute, Lexington, Va.
State College of Washington, Pullman, Wash.
University of Wisconsin, Madison, Wis.

HONOR SCHOOLS.

Culver Military Academy, Culver, Ind.
Kemper Military School, Booneville, Mo.
Kentucky Military Institute, Lyndon, Ky.
New Mexico Military Institute, Roswell, N. Mex.
New York Military Academy, Cornwall-on-Hudson, N. Y.
St. John's Military Academy, Delafield, Wis.
St. John's School, Manlius, N. Y.
College of St. Thomas, St. Paul, Minn.
Wentworth Military Academy, Lexington, Mo.
Western Military Academy, Alton, Ill.

STUDENTS AND GRADUATES OF CIVIL INSTITUTIONS OF LEARNING AT WHICH ARMY OFFICERS ARE DETAILED AS MILITARY INSTRUCTORS.

In December, 1914, an effort was made by this office to ascertain for each of the 10 years 1905 to 1914, inclusive, the number of students enrolled at, and the number graduated from, civil institutions of learning at which officers of the Army were detailed as military instructors. Requests for information on the subject were sent to all such institutions (103 at the time), and all but 7 of them furnished figures. Data on this subject have been obtained from time to time since 1914, and the following table shows the numbers of students

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at, and graduates from, those civil educational institutions at which officers of the Army are detailed as instructors in military science and tactics that have furnished figures:

Year.	Number of students under military instruction.	Number of military students graduated.
1905	17,835	2,441
1906	18,138	2,890
1907	21,616	3,073
1908	24,101	3,441
1909	25,222	3,789
1910	27,122	4,215
1911	28,843	4,701
1912	29,979	4,757
1913	31,028	5,153
1914	33,424	4,970
1915	32,313	[1] 2,276
1916	35,091	2,474

[1] Includes only those who graduated in military science and tactics, and does not represent the total number of graduates that at some time during the course received instruction in that subject.
The report for 1914 included students enrolled at 101 institutions; that for 1915, students at 100 institutions; and that for 1916, students at 106 institutions.

* * * * * * *

The losses in the Army during the year ended June 30, 1916, are summarized in the following statement:

REGULAR ARMY.

Officers:		
Died of disease, etc	35	
Resigned or discharged	38	
Dismissed	3	
Retired	36	
Deserted	1	
		113
Enlisted men:		
Died of disease, etc	505	
Discharged upon expiration of term of service	5,793	
Discharged for disability, by sentence of court-martial, or by order	12,378	
Deserted (includes 2,442 deserters subsequently returned to military control)	3,856	
Retired	321	
Transferred to the Reserve	4,626	
Missing in action	5	
		27,484
Aggregate		27,597

PHILIPPINE SCOUTS.

Officers: Resigned or discharged		3
Enlisted men:		
Died of disease, etc	14	
Discharged upon expiration of term of service	262	
Discharged for disability, by sentence of court-martial, or by order	128	
Deserted (includes 9 deserters subsequently returned to military control)	13	
Transferred to the Reserve	11	
		428
Aggregate		431

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AGGREGATE.

Officers:		
Died of disease, etc	35	
Resigned or discharged	41	
Dismissed	3	
Retired	36	
Deserted	1	
		116
Enlisted men:		
Died of disease, etc	519	
Discharged upon expiration of term of service	6,055	
Discharged for disability, by sentence of court-martial, or by order	12,506	
Deserted (includes 2,451 deserters subsequently returned to military control)	3,869	
Retired	321	
Transferred to the Reserve	4,637	
Missing in action	5	
		27,912
Aggregate		28,028

As will be seen from the foregoing table, but 5,793 enlisted men were discharged from the Regular Army upon expiration of term of service during the year. This small number of discharges upon expiration of service is the result of the act of August 24, 1912, which provided that after November 1, 1912, all enlistments in the Regular Army should be for a period of seven years, four years with the colors and three years in the Reserve, or the soldier may be furloughed to the Reserve after an active service of three years. In order to reenlist for active service, he must serve four years with the colors. Consequently, the only discharges occurring during the year upon expiration of term of service were of those men who enlisted prior to November 1, 1912. The number (4,626) furloughed to the Reserve during the fiscal year 1916 should be included in the separations from service upon expiration of term of enlistment, for even though they have not been actually discharged, they have completed the term of active service for which enlisted. If this number be added, the total number of separations from active service because of completion of term of enlistment, or that part of it calling for active service, is 10,419. During the preceding fiscal year the number of discharges upon expiration of term of service was 27,020, and during the fiscal year 1914 it was 25,027. Those numbers are, respectively, 8.4, 19.7, and 20 per cent of the whole number of enlisted men in service or of enlistment contracts in force during each of those years.

The losses from all causes other than completion of term of active service among enlisted men of the Regular Army during the fiscal year ended June 30, 1916, numbered 17,065, but from this number should be deducted the number (2,442) of deserters that returned to military control during the year, leaving 14,623 as representing the number of losses during the year from causes other than completion of term of active service. During the preceding fiscal year those losses were 14,517, and during the fiscal year ended June 30, 1914, they were 12,487. Those numbers are, respectively, 13.4 (or 11.8, if the number gained from desertion is deducted from the total losses from desertion), 10.6, and 9.97 per cent of the whole number of enlistment contracts in force during the year.

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DESERTIONS.

As shown by the official returns, the number of desertions from the Army during the fiscal year ended June 30, 1916, aggregated 3,856, which is 3.10 per cent of the whole number of enlistment contracts in force during the year. This is a slight decrease as compared with the percentage (3.23) for 1915. The number of reported desertions during the year 1916 is 579 less than the number reported during 1915 and 595 less than the number reported in 1914.

Of the 3,856 cases of reported desertion during the year, 200 were declared erroneous; 2 of the men so reported were tried and acquitted of the charge, and 580 were tried and found guilty of the lesser offense of absence without leave, making a total of 782 cases improperly classed as desertions. If this number be deducted from the 3,856 reported desertions, as shown by the returns, there remain but 3,074 cases, or 2.47 per cent, of actual desertions. However, this figure does not represent the actual number of desertions occurring during the year, because it is impossible at this time to even estimate the number of the men now regarded as deserters that will come under military control and be acquitted of the charge or be convicted of the lesser offense of absence without leave before the statute of limitations will apply in their cases. Under the law now in operation the trial of the men who enlisted and deserted during the fiscal year 1916 will not be barred by the statute of limitations until some time during the fiscal year 1925. Unless it can be assumed that all men reported as deserters during the year who do not return to military control or have not been tried before the annual report for that year is published can be classed as deserters, the actual number of desertions during a year can not be stated in the report for that year. As cases have arisen in which men have been convicted of absence without leave after having been absent more than two years from the date of their reported desertion, no such assumption is possible. As the figures hereafter given in this report are comparative, and because it is impossible to determine at this time how many of the men dropped as deserters during the year will ultimately be regarded as such, the number of reported desertions as shown by the returns will be used.

A comparison of the percentages of reported desertions in each of the past 20 years is shown in the following table:

Fiscal years.	Percentage deserted.	Fiscal years.	Percentage deserted.
1916	3.10	1906	7.43
1915	3.23	1905	6.79
1914	3.10	1904	6.61
1913	4.15	1903	7.10
1912	3.00	1902	5.00
1911	2.28	1901	4.12
1910	3.66	1900	4.09
1909	4.97	1899	3.22
1908	4.59	1898	1.57
1907	5.62	1897	3.13

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The following table shows the percentages of desertions occurring in each of the several periods of service during the past three years:

Period of service in which desertion took place.	Percentage of whole number of desertions.		
	Year ended June 30, 1916.	Year ended June 30, 1915.	Year ended June 30, 1914.
First 3 months of service	10	13	18
Second 3 months of service	11	17	19
Third 3 months of service	10	14	14
Fourth 3 months of service	8	10	7
First year of service	39	54	58
Second year of service	24	20	18
Third year of service	9	5	5
Fourth year of service	(1)	.....	.....
First enlistment	72	79	81
Second enlistment	21	16	13
Third enlistment	4	3	3
Fourth enlistment and subsequent enlistments	3	2	3
Total	100	100	100

[1] During the year 1916 there were 10 desertions during the fourth year of service, but as that number is less than one-third of 1 per cent, it is not shown in this table. During the preceding years the enlistment period ended at the expiration of 3 years.

During the fiscal year ended June 30, 1916, there was a material decrease in the percentage of desertions occurring in the first year of service, the percentages for the years 1916, 1915, and 1914, being, respectively, 39, 54, and 58 per cent. This decrease is due no doubt to the fact that during the first eight months of the year 1916 the original enlistments were comparatively few, as the Army had been recruited to its authorized strength. Consequently, the total number of men serving in the first year of their enlistment period was much less than the number so serving during the years 1914 and 1915, and it naturally followed that the number of desertions during the first year of service was less in 1916 than in preceding years.

The percentages of desertions by branches of service during the fiscal years 1911–1916 are shown in the following table:

Branches of service.	Percentages.					
	1916	1915	1914	1913	1912	1911
Hospital Corps	4.15	4.64	3.34	4.24	3.03	3.10
Coast Artillery Corps	3.78	3.72	3.48	4.19	3.38	2.42
Cavalry	3.53	3.87	3.48	4.53	2.95	1.92
Field Artillery	3.43	4.82	5.20	6.11	4.07	2.93
Engineers	2.58	4.08	2.94	4.68	4.26	3.09
Infantry	2.48	2.28	2.49	3.95	2.37	1.85
All others, including unassigned recruits	2.82	3.12	2.68	3.18	3.32	2.85
The Army	3.10	3.23	3.10	4.15	3.00	2.28

The foregoing statement shows a decrease in the percentage of desertions during the last fiscal year over the year 1915 in each branch of the service except the Infantry, in which there is a slight increase.

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As in the preceding reports, the percentages of desertions hereinbefore shown are based on the whole number of enlisted men who were in service at any time during the year, and not on an average enlisted strength. All the losses during the year are included in the basic figures used, and those figures represent the whole number of enlisted men who might have become deserters or the whole number of enlistment contracts that might have been terminated by desertion at some time during the year. It is clearly improper to use as a basis for calculating the percentages of desertions a strength obtained by averaging the number of men in service at the end of each month of the year—a number that does not include men who went out of service during the year, and even does not include the deserters themselves. If, however, the average enlisted strength is used as a basis, it is found that the number of desertions from the enlisted force of the Army during the year ended June 30, 1916, was 4.07 per cent of the strength as against 4.76 per cent during the preceding fiscal year, 4.55 during the year 1914, and 5.48 during the year 1913.

An examination of the returns for the fiscal year ended June 30, 1916, was made for the purpose of ascertaining what organizations serving within the continental limits of the United States had the lowest and highest relative number of desertions. It should be borne in mind that in the following paragraphs, showing the results of that examination, the organizations that served a part or the whole of the year in Hawaii, Alaska, the Canal Zone, China, or the Philippine Islands are not taken into consideration, because in those regions it is unusually difficult for a deserter to make good his escape from military control, and consequently the number of desertions that occur there are so small as to be of no importance for the purpose of this report.

The regiments serving in the United States that had the lowest percentages of desertions during the year were the Twenty-sixth Infantry, Tenth Cavalry, and Twenty-fourth Infantry, the first-mentioned regiment being a white organization, while the other two were colored organizations. The desertions from those regiments are 1.46, 1.50, and 1.81 per cent, respectively, of the whole number of enlisted men in the service, or enlistment contracts in force, in those regiments during the year. The Tenth Cavalry was one of the two regiments having the lowest percentage of desertions during the years 1910 to 1915, inclusive, the percentages for those years being 1.52, 0.78, 1.52, 1.99, 1.42, and 1.17, respectively.

As was the case during the years 1914 and 1915 the Third Field Artillery had the lowest percentage of desertions of any regiment of that arm serving in the United States, the percentages of desertion for that regiment being 3.96 for the year 1916, 4.57 for 1915, and 5.19 for 1914.

The three regiments that had the highest percentage of desertions were the Twenty-first Infantry, First Cavalry, and Eleventh Infantry, the percentage of desertions from those organizations being 11.12, 9.16, and 6.35 per cent, respectively.

Of the white troops 3.72 per cent and of the colored troops 0.96 per cent were reported as deserters, as compared with 3.10 for the whole Army. The percentages for the fiscal year 1915 were: White troops, 3.40, and colored troops, 0.44.

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The following table shows for each month of the fiscal years 1914, 1915, and 1916 the percentages of the total number of desertions occurring during each of these years:

Months.	Fiscal years.			Months.	Fiscal years.		
	1916	1915	1914		1916	1915	1914
July	12.16	10.30	9.70	February	5.91	5.84	6.02
August	12.52	11.41	10.52	March	5.37	7.08	8.96
September	10.43	9.56	8.17	April	6.92	9.43	9.20
October	8.58	8.12	8.56	May	7.49	10.35	9.31
November	7.06	5.89	6.73	June	12.68	11.23	11.48
December	5.50	5.79	5.70				
January	5.38	5.00	5.65	Total	100.00	100.00	100.00

That nationality is not an important factor in considering the subject of desertions from the Army was again emphasized by the fact that during the past fiscal year the ratio of foreign-born deserters to the whole number of deserters was approximately the same as the ratio of foreign-born men who have enlisted during the past three years to the total number of enlistments during that period.

Reports of return of deserters and escaped prisoners to military control during the fiscal year ended June 30, 1916, were received in 2,501 cases, not including 52 cases in which the deserters were found to be not amenable to trial because of the statute of limitation. Of the 2,501 returned to military control during the year, 997, or 39.86 per cent, surrendered themselves, and 1,504, or 60.14 per cent, were apprehended. Of the latter number 706 were apprehended by the municipal police, 390 by sheriffs or other county officers, 181 by private detective agencies, 122 by the military authorities, including those identified by finger-print records in The Adjutant General's Office, 28 by officers in charge of penal institutions, 25 by United States marshals and their deputies, 13 by railroad police, 12 by naval authorities, 11 by civilians (not civil officers), 7 by State detectives or police, 5 by Mexican authorities, and 4 by immigration officers. Of the total number apprehended during the year 46.94 per cent were apprehended by the municipal police, 25.93 per cent by county officers, 10.03 per cent by private detectives or detective agencies, 8.11 per cent by the military authorities.

The disposition of the 2,501 men returned to military control during the year is shown in the following table:

Disposed of without trial:		
Charge removed as erroneous under paragraph 131, Army Regulations	200	
Restored to duty	5	
Discharged under paragraph 148½, Army Regulations	123	
Discharged on surgeon's certificate of disability	1	
Escaped	13	
Died	2	
Dropped, turned over to Navy	2	
		346
Tried by court-martial:		
Acquitted	2	
Convicted of absence without leave—		
Not sentenced to discharge	486	
Dishonorably discharged	84	
Sentence of dishonorable discharge mitigated by reviewing authority	1	

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Tried by court-martial—Continued.		
Convicted of absence without leave—Continued.		
Sentence of dishonorable discharge disapproved by reviewing authority	3	
Sentence of dishonorable discharge suspended and restored to honorable duty	2	
Sentence of dishonorable discharge suspended, sentence uncompleted	4	
Convicted of desertion—		
Not sentenced to discharge	77	
Sentence of dishonorable discharge mitigated by reviewing authority	10	
Sentence of dishonorable discharge disapproved by reviewing authority	6	
Restored to honorable duty after being sentenced to dishonorable discharge	59	
Sentence of dishonorable discharge suspended, sentence uncompleted	220	
Dishonorably discharged and confined	1,032	
		1,986
Reports of results of trial not yet received		169
Total		2,501

It will be seen from the foregoing table that of the men tried for desertion 646 have been retained in service (61 after having been sentenced to dishonorable discharge), 224 have been sentenced to dishonorable discharge with that part of sentence suspended and remaining unexecuted at date of this report, and 1,116 have been dishonorably discharged.

The lengths of sentences of confinement as approved in cases of men dishonorably discharged, not including men restored to honorable duty or serving under suspended sentences of dishonorable discharge, are shown in the following table:

Less than 3 months	8	
3 to 6 months	226	
7 to 12 months	16	
Less than 1 year		250
1 year		425
1½ years		283
2 years		83
2½ years		24
3 years		17
3½ years		3
4 years and over		7
		1,092
No sentence of confinement		24
Total		1,116

RESTORATION OF CITIZENSHIP AND REENLISTMENT OF MEN WHOSE SERVICE DURING THE LAST PRECEDING TERM OF ENLISTMENT WAS NOT HONEST AND FAITHFUL.

Applications were received during the year from 141 deserters for restoration of the rights of citizenship under the provisions of the act of Congress approved August 22, 1912 (37 Stat. L., 356). Favorable action was taken upon all of these applications.

Pursuant to the provisions of the act cited, the enlistment (under certain conditions) of former soldiers whose service during their preceding terms of enlistment was not honest and faithful was continued

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during the fiscal year ended June 30, 1916. Of the 1,431 applications for permission to enlist again received during the year from such former soldiers 99 were favorably considered, 1,182 were denied, either because the offenses for which the soldiers had been discharged were of such a nature as to preclude their enlistment or because their conduct while in service or after discharge had not been such as to warrant favorable consideration, and 150 applications had not been finally acted upon because evidence or reports needed for an intelligent consideration of the applications had not been received in this office. During the year 45 men who had been granted permission to reenlist (17 of them being former deserters) availed themselves of the privilege. In addition 1 man (a former deserter) was reenlisted at the United States Disciplinary Barracks, Fort Leavenworth, under standing authority given to the commandant, a total of 46. Of these, 1 (a former deserter) has deserted, 1 has been discharged under paragraph 148½, Army Regulations, and 44 (17 of them former deserters) were serving with their organizations on June 30, 1916.

Of the 204 former soldiers (91 of them former deserters) referred to in the last annual report as having enlisted during the fiscal years 1914 and 1915 after a prior service that was not honest and faithful, 1 has died while absent in desertion, 37 (13 of them former deserters) have been dishonorably discharged, 2 have been discharged without honor, 18 (8 of them former deserters) have been discharged under paragraph 148½, Army Regulations, 2 (1 of them a former deserter) have died while in service, 14 (7 of them former deserters) have been honorably discharged—2 with the rank of corporal, 14 (9 of them former deserters) were absent in desertion at the close of the fiscal year 1916, 1 was serving sentence (dishonorable discharge suspended) for desertion, 1 (a former deserter) was present awaiting trial for desertion, and 114 (52 of them former deserters) were on duty with their organizations at that time—16 with the rank of corporal, 1 with the rank of electrician sergeant, second class, 3 with the rank of sergeant, 1 with the rank of first sergeant, and 1 with the rank of sergeant, first class.

The total number of these reenlistments prior to the close of the fiscal year 1916 is 250.

In tabulated form the results appear as follows:

	1914	1915	1916	Totals.
Reenlisted	(34) 93	(57) 111	(18) 46	(109) 250
Honorably discharged	(5) 10	(2) 4	.....	(7) 14
Died	(1) 1	1	.....	(1) 2
Dishonorably discharged	(4) 21	(9) 16	.....	(13) 37
Discharged without honor	1	1	.....	2
Discharged under par. 148½, Army Regulations	6	(8) 12	1	(8) 19
Died in desertion	1	.....	.....	1
Absent in desertion, June 30, 1916	(4) 5	(5) 9	(1) 1	(10) 15
Serving sentence (dishonorable discharge suspended) for desertion, June 30, 1916	.....	1	.....	1
Present, awaiting trial for desertion, June 30, 1916	(1) 1	.....	.....	(1) 1
Present for duty, June 30, 1916	(19) 47	(33) 67	(17) 44	(69) 158
Totals	(34) 93	(57) 111	(18) 46	(109) 250

NOTE.—Figures in parentheses indicate number of men who were convicted of desertion prior to reenlistment.

DISCHARGES OF ENLISTED MEN BY ORDER.

Of the 8,051 discharges by order, as shown in the table opposite page 24 of this report, 602 (not including 17 discharged upon surgeon's

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certificate of disability) were discharged under the provisions of paragraph 148½, Army Regulations, which provides for the discharge of enlisted men who are inapt, or who do not have the required degree of adaptability, or who have undesirable traits of character; 5,747 were discharged by purchase under rules governing such discharge, and the remaining 1,702 were discharged for various causes, the principal ones being on account of fraudulent enlistment, desertion, imprisonment by the civil authorities, to enter the Soldiers' Home, and for the convenience of the Government.

Of the discharges by purchase ordered, 611 were ordered by the War Department, 2,953 by the commanding general, Eastern Department, 132 by the commanding general, Central Department, 1,251 by the commanding general, Southern Department, 169 by the commanding general, Philippine Department, 272 by the commanding general, Hawaiian Department, and 359 by the commanding general, Western Department.

Of the discharges under paragraph 148½ ordered during the year 276 were ordered by the War Department, 137 by the commanding general, Eastern Department, 6 by the commanding general, Central Department, 71 by the commanding general, Southern Department, 36 by the commanding general, Western Department, 2 by the commanding general, Philippine Department, and 44 by the commanding general, Hawaiian Department.

Under the provisions of paragraph 139, Army Regulations, a commander of a territorial department or mobilized division is authorized to discharge enlisted men by purchase, on account of desertion or imprisonment by civil court or under paragraph 148½, Army Regulations.

DISCHARGES ON SURGEON'S CERTIFICATE OF DISABILITY.

It appears from the official returns that 1,329 enlisted men of the Regular Army were discharged on surgeon's certificate of disability during the year. This number is larger than the number (1,168) discharged during the preceding year, and was also larger than the number (1,004) discharged during the fiscal year 1914.

The number of discharges for disability is larger during the year 1916 than during any of the three preceding years, and based on the number of enlistment contracts in force during the respective years, the percentage is greater for the year 1916 than for either of the three preceding years, the percentage being 1913, 0.99; 1914, 0.80; 1915, 0.85; and 1916, 1.06.

An examination of the records shows that 691 of the 1,329 discharges on surgeon's certificate of disability during the past fiscal year were based on disabilities that existed prior to enlistment. Of the 1,168 men discharged on surgeon's certificate of disability during the preceding year 707 were discharged because of disability existing prior to enlistment, and during the year 1914, out of a total of 1,004 discharges of this class, 545 were discharged because of disabilities that existed prior to enlistment. These items in terms of percentage for the past three years are as follows: 1916, 52.0; 1915, 60.6; and 1914, 54.2. The percentage of discharges on account of disability existing prior to enlistment was less during the past year than it was during any of the three preceding years.

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THE MILITARY ACADEMY.

On June 30, 1916, there were under assignment to duty at the United States Military Academy 99 commissioned officers (including 7 professors, 2 acting professors, and 2 associate professors), 1 librarian, 1 master of the sword, 1 teacher of music, 4 civilian instructors in languages, and 2 civilians employed as instructors in fencing, broadsword exercise, and military gymnastics, a total of 108. This is a decrease of 7 since July 1, 1915, the date of the superintendent's report for that year.

On September 1, 1915, there were 630 cadets on the rolls, including 4 Filipino cadets and 2 foreign cadets from China. Between September 1, 1915, and September 1, 1916, 39 cadets were discharged for deficiency in studies; 1 was discharged for deficiency in conduct; 1 was discharged for deficiency in studies and in conduct; 8 were discharged by reason of physical disability; 15, including 1 foreign cadet, from China, resigned; 125, including 1 Filipino cadet, were graduated; and 1 was accidentally drowned. In June, 1916, 158 cadets were admitted; in July, 1916, 164 cadets, including 1 foreign cadet, from Cuba, were admitted; and in August, 1916, 3 were admitted. Four ex-cadets, who were reappointed, with the approval of the academic board, were also admitted in August. 1916.

On September 1, 1916, the beginning of the current academic year, there were 769 cadets on the rolls, including 4 Filipino cadets and 2 foreign cadets—1 from China and 1 from Cuba. Those cadets were divided among the four classes, as follows: First class, 141; second class, 156; third class, 147; and fourth class, 325.

The usual examination of candidates for admission to the Military Academy was held at various military posts, beginning March 21, 1916. An additional examination was held, beginning June 6, 1916, with a view to fill the 102 vacancies that existed after the regular examination, and also to fill the vacancies (166) in the first annual increment of the increase in the Corps of Cadets provided for by the act of Congress approved May 4, 1916 (Public, No. 191, 64th Cong.). Inasmuch as it became apparent that not enough cadets to fill the vacancies in the first increment would be obtained from this examination it was decided to hold still another examination (physical) on June 27, 1916, mental qualification being by certificate only. The total number of candidates designated for the three examinations was 1,228. Of that number, 202 failed to report for examination; 12 declined appointment, their appointments were canceled or they were prevented by sickness from reporting; 109 failed to complete the mental or physical examination, or both; 515 were rejected upon mental or physical examination, or upon both; 1 was refused admission because of cribbing, and (at the June 27 examination) 2 qualified physically and failed to submit educational certificates. There were no vacancies for 58 alternates and 5 candidates at large who qualified. The remaining 324 candidates were found qualified and were admitted to the academy.

The act of Congress approved May 4, 1916, referred to above, authorized an increase of 664 in the Corps of Cadets. It is prescribed that that increase shall be divided into four annual increments, each increment to be as nearly equal as practicable. After the examination of June 27 there were 26 vacancies in the first increment.

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The number of cadets authorized for 1916 is 834. There were 767 cadets on the rolls (excluding the two foreign cadets) on September 1, 1916, leaving 67 vacancies on that date. That number has been increased by resignations and death, so that the number of vacancies now is 75. The number of cadets authorized for 1917 is 1,000; for 1918, 1,166; and for 1919, 1,332.

Information concerning the operation of the several academic departments, the enlarging of the Military Academy, discipline of the Corps of Cadets, and other matters of interest are to be found in the Annual Report of the Superintendent of the United States Military Academy. As it is customary to print that report with the other reports of the War Department, further reference to those subjects is omitted from this report.

RECRUITING FOR THE REGULAR ARMY.

The general recruiting detail for the Regular Army at the beginning of the fiscal year 1916 consisted of 124 commissioned officers and 636 enlisted men. At the end of that year the detail consisted of 126 officers and 1,077 enlisted men. Included in the number of commissioned officers so detailed at the end of the year are 66 officers regularly on duty at general recruit depots and 60 officers on duty at recruiting stations. In the last mentioned number are included 30 retired officers detailed on active duty under the provisions of the act of Congress approved April 23, 1904 (33 Stat. L., 264). Due to the increase in the strength of the Army authorized by the joint resolution of Congress approved March 17, 1916, and the act of Congress approved June 3, 1916, and the consequent necessity for securing the number of recruits authorized, the recruiting personnel has been increased in number 443, the increase consisting of 2 commissioned officers and 441 enlisted men.

At the beginning of the fiscal year 84 central recruiting stations were maintained, and on June 30, 1916, there were 189. Of the latter number, 54 were main stations, each in charge of a recruiting officer, and the remainder were stations auxiliary to the main stations. In three recruiting districts additional commissioned officers are assigned to assist the recruiting officer in charge, New York having 3 and Chicago and San Francisco having 1 each of such additional officers. An additional main station and recruiting district, with a commissioned officer in charge, was also authorized at Houston, Tex., within the fiscal year covered by this report, but the station was not fully opened for business until after the close of the fiscal year. In addition to the main and auxiliary stations, temporary stations were opened and maintained after the increase in the Army was authorized in order to canvass more thoroughly the territory embraced in the various recruiting districts within the United States.

Within the fiscal year 1915 the largest number of stations of all kinds—main, auxiliary, and temporary—maintained in any one month was 270, and the smallest number was 94. Within the fiscal year covered by this report the corresponding numbers were 366 and 94, respectively. In this connection, it may be remarked that prior to the increase of the Army authorized, the average number of stations maintained was not increased, although, due to the activity of the officers and enlisted men on recruiting duty, a sufficient number of recruits were secured to keep the Army filled to the strength then

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authorized. As a matter of fact, prior to the increase authorized March 17, 1916, the number of recruits secured in excess of the number required to fill existing vacancies caused a practical cessation of recruiting in some arms of the service.

The practice maintained for several years of sending applicants for enlistment, accepted at the recruiting stations, to the recruit depots for physical examination and enlistment was continued throughout the past fiscal year with the same satisfactory results experienced in preceding years.

Included in the term "reenlistments" in this report are those former soldiers who enlist again within three months of the date of termination of their prior service and are thereby entitled, under existing law, to three months' additional pay, on second enlistment and continuous-service pay on any such enlistment, while under the term "enlistments" are included men of no previous service and also those men who having had former service did not enlist again within three months from the date of the termination of their former service.

Within the fiscal year 1916 enlistments and reenlistments for the Regular Army numbered 27,468, including 25,450 for the line of the Army, 601 for the Hospital Corps (now Medical Department), 329 for the Quartermaster Corps, 374 for other staff departments, and 714 for the Philippine Scouts. The enlistments numbered 22,182, including enlistments of 3,238 men with former service. Of these enlistments, 21,002 (2,920 with former service) were for the line of the Army, 412 (92 with former service) for the Hospital Corps or Medical Department, 116 (71 with former service) for the Quartermaster Corps, 201 (66 with former service) for other staff departments, and 451 (89 with former service) for the Philippine Scouts. The reenlistments numbered 5,286, of which 4,448 were for the line of the Army, 189 for the Hospital Corps or Medical Department, 213 for the Quartermaster Corps, 173 for other staff departments, and 263 for the Philippine Scouts.

With very few exceptions, rendered necessary by the demands of regiments stationed on the Mexican border, the plan authorized by the Secretary of War several years ago of furnishing recruits to organizations semiannually, was adhered to throughout the past fiscal year.

The total number of those who applied for enlistment in the Army in each recruiting district, the number of such applicants accepted or rejected in each district, and the number of accepted applicants afterward rejected at recruiting depots are set forth in the following table:

Recruiting districts.	Number of applicants accepted.	Number of applicants rejected.	Total number of applicants.	Applicants accepted at stations and subsequently rejected at depots and depot posts.
Albany, N. Y	190	807	997	21
Atlanta, Ga	761	1,520	2,281	55
Baltimore, Md	329	1,016	1,345	52
Boston, Mass	322	2,561	2,883	29
Buffalo, N. Y	467	2,154	2,621	23
Charlotte, N. C	892	3,119	4,011	123
Chicago, Ill	3,748	9,702	13,450	442
Cincinnati, Ohio	550	1,353	1,903	48
Cleveland, Ohio	709	911	1,620	73
Columbus, Ohio	231	954	1,185	15
Dallas, Tex	382	1,089	1,471	79
Davenport, Iowa	254	1,245	1,499	29

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Recruiting districts.	Number of applicants accepted.	Number of applicants rejected.	Total number of applicants.	Applicants accepted at stations and subsequently rejected at depots and depot posts.
Denver, Colo.	365	2,891	3,256	77
Detroit, Mich.	595	1,698	2,293	71
Evansville, Ind.	345	702	1,047	42
Grand Rapids, Mich.	171	705	876	12
Harrisburg, Pa.	243	440	683	34
Huntington, W. Va.	339	1,573	1,912	38
Indianapolis, Ind.	973	2,260	3,233	120
Joplin, Mo.	410	1,548	1,958	43
Kansas City, Mo.	743	1,086	1,829	61
Knoxville, Tenn.	350	1,829	2,179	30
Lexington, Ky.	398	909	1,307	51
Little Rock, Ark.	306	993	1,299	21
Los Angeles, Cal.	365	1,068	1,433	21
Louisville, Ky.	387	1,459	1,846	56
Memphis, Tenn.	251	1,139	1,390	20
Minneapolis, Minn.	605	1,928	2,533	50
Nashville, Tenn.	308	782	1,090	40
Newark, N. J.	266	1,333	1,599	71
New Haven, Conn.	315	1,224	1,539	47
New Orleans, La.	360	930	1,290	28
New York, N. Y.	3,580	12,299	15,879	681
Oklahoma, Okla.	281	1,290	1,571	36
Omaha, Nebr.	368	1,010	1,378	57
Peoria, Ill.	394	755	1,149	57
Philadelphia, Pa.	837	2,190	3,027	175
Pittsburgh, Pa.	353	2,173	2,526	34
Portland, Me.	175	576	751	38
Portland, Oreg.	353	1,347	1,700	44
Providence, R. I.	289	1,250	1,539	48
Richmond, Va.	277	488	765	43
Roanoke, Va.	186	482	668	17
St. Louis, Mo.	1,476	3,865	5,341	211
Salt Lake City, Utah.	157	864	1,021	28
San Francisco, Cal.	2,937	12,595	15,532	525
Savannah, Ga.	532	2,221	2,753	18
Scranton, Pa.	261	968	1,229	56
Seattle, Wash.	150	404	554	10
Spokane, Wash.	201	410	611	26
Syracuse, N. Y.	227	1,171	1,398	31
Terra Haute, Ind.	398	723	1,121	55
Toledo, Ohio.	339	1,163	1,502	31
Wichita, Kans.	292	925	1,217	51
Total.	30,993	102,097	133,090	4,194

Analysis of the preceding table shows that 23 per cent of those who applied for enlistment at recruiting stations were accepted and that 13 per cent of the accepted applicants were afterward rejected at depots. These items for the preceding fiscal year were 26 per cent and 13 per cent, respectively.

The following table shows the number of enlistments for the Regular Army and the number of applicants rejected at the recruit depots and other military posts and in the field within the fiscal year 1916:

Station or post.	Number enlisted.	Number rejected.	Total number examined.
General recruiting stations.	193	.....	193
Recruit depots:			
Columbus Barracks, Ohio.	5,611	768	6,379
Jefferson Barracks, Mo.	6,667	1,080	7,747
Fort Logan, Colo.	1,234	328	1,562
Fort McDowell, Cal.	2,416	549	2,965
Fort Slocum, N. Y.	5,066	1,322	6,388
Total.	20,994	4,047	25,041

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Station or post.	Number enlisted.	Number rejected.	Total number examined.
Depot posts:			
Fort Bliss, Tex	69	1	70
Fort Douglas, Utah	8	1	9
Fort George Wright, Wash.[1]	161	6	167
Jackson Barracks, La.[2]	228	25	253
Fort Lawton, Wash.[3]	268	10	278
Fort Oglethorpe, Ga.[4]	603	54	657
Fort Sam Houston, Tex	187	19	206
United States Disciplinary Barracks, Fort Leavenworth, Kans	29	6	35
Vancouver Barracks, Wash.[1]	279	48	327
Total	1,832	170	2,002
Military posts (other than depot posts)	2,296	125	2,421
In the field	1,319	29	1,348
Porto Rico Regiment of Infantry	120	16	136
Aggregate	26,754	4,387	31,141

[1] Discontinued as depot post May 12, 1916.
[2] Discontinued as depot post May 11, 1916.
[3] Discontinued as depot post May 10, 1916.
[4] Discontinued as depot post Mar. 13, 1916.

The foregoing table does not include 714 enlistments and 197 rejections for the Philippine Scouts. Including those, the aggregate number of enlistments for the entire Regular Army within the fiscal year was 27,468 and the total number of rejections 134,149, of which 102,097 were rejected at the recruiting stations, 4,387 at recruit depots, and 197 for the Philippine Scouts. This makes an aggregate of 161,617 enlistments and rejections for the entire Regular Army within the fiscal year.

Of the rejected applicants, 14,987 were rejected because of minority, 2,728 because they were aliens, and 3,537 because of illiteracy. Of the accepted applicants 2,196 declined to enlist at depots or eloped en route thereto.

The race and nativity of those enlisted and reenlisted in the Army within the fiscal year 1916 are set forth in the following table:

Race and nativity.	Regular Army.					Philippine Scouts.	Aggregate.
	Line of Army.	Staff departments, not including Hospital Corps and Quartermaster Corps.	Medical Department.	Quartermaster Corps.	Total.		
Native white:							
Enlistments	18,243	190	367	98	18,898	.....	18,898
Reenlistments	3,305	137	146	166	3,754	.....	3,754
Total	21,548	327	513	264	22,652	.....	22,652
Foreign white:							
Enlistments	2,136	11	43	16	2,206	.....	2,206
Reenlistments	657	36	32	36	761	.....	761
Total	2,793	47	75	52	2,967	.....	2,967
Colored:							
Enlistments	562	.....	2	2	566	.....	566
Reenlistments	413	.....	11	11	435	.....	435
Total	975	.....	13	13	1,001	.....	1,001
Indians:							
Enlistments	14	.....	.....	.....	14	.....	14
Reenlistments	.....	.....	.....	.....	.....	.....	.....
Total	14	.....	.....	.....	14	.....	14

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Race and nativity.	Regular Army.					Philippine Scouts.	Aggregate.
	Line of Army.	Staff departments, not including Hospital Corps and Quartermaster Corps.	Medical Department.	Quartermaster Corps.	Total.		
Porto Ricans:							
Enlistments	47	.....	.....	.....	47	.....	47
Reenlistments	73	.....	.....	.....	73	.....	73
Total	120	.....	.....	.....	120	.....	120
Filipinos:							
Enlistments	.....	.....	.....	.....	.....	451	451
Reenlistments	.....	.....	.....	.....	.....	263	263
Total	.....	.....	.....	.....	.....	714	714
Total enlistments	21,002	201	412	116	21,731	451	22,182
Total reenlistments	4,448	173	189	213	5,023	263	5,286
Aggregate	25,450	374	601	329	26,754	714	27,468

Analysis of the last preceding table discloses that practically 90 per cent of the original enlistments of white soldiers were enlistments of natives of the United States. Within each of the three years last preceding that percentage was 86, 84, and 87, respectively.

The following table shows the number of enlistments and reenlistments monthly in the line of the Army within the three years ended June 30, 1916:

Months.	Fiscal year ended—								
	June 30, 1916.			June 30, 1915.			June 30, 1914.		
	Enlistments.	Reenlistments.	Total.	Enlistments.	Reenlistments.	Total.	Enlistments.	Reenlistments.	Total.
July	1,325	820	2,145	2,211	1,318	3,529	1,671	421	2,092
August	1,547	744	2,291	2,664	1,439	4,103	2,005	488	2,493
September	1,582	688	2,270	2,737	1,348	4,085	1,874	567	2,441
October	1,423	688	2,111	3,202	1,353	4,555	2,020	669	2,689
November	1,460	390	1,850	3,329	1,249	4,578	2,454	857	3,311
December	1,441	213	1,654	3,316	1,508	4,824	3,447	1,134	4,581
January	1,488	125	1,613	3,542	1,535	5,077	3,205	1,206	4,411
February	1,104	227	1,331	2,761	1,074	3,835	2,388	1,053	3,441
March	1,961	110	2,071	2,116	1,035	3,151	2,311	1,126	3,437
April	2,483	246	2,729	1,540	797	2,337	2,754	1,037	3,791
May	2,058	109	2,167	1,463	705	2,168	2,484	1,027	3,511
June	3,130	88	3,218	1,461	724	2,185	1,946	1,101	3,047
Total	21,002	4,448	25,450	30,342	14,085	44,427	28,559	10,686	39,245

The average total monthly enlistments, including reenlistments, derived from the foregoing table are as follows:

For the fiscal year 1914 3,270
For the fiscal year 1915 3,702
For the fiscal year 1916 2,121

The decrease observed in the number of enlistments and reenlistments is believed to be due to the following causes: First, the restriction on recruiting that prevailed for practically the first two-thirds of the fiscal year, due to the fact that during that period the Army was practically filled. Second, during the last one-third of the

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fiscal year when recruiting was stimulated for the purpose of obtaining the additional recruits provided by the legislation increasing the Army, labor conditions throughout the country were such that all who desired to obtain employment in civil life readily obtained it with good wages, thus rendering it difficult to secure recruits. Third, the provisions of law then existing that restricted soldiers who enlisted after November 1, 1912, from reenlisting until four years from the date of enlistment necessarily reduced the number of reenlistments within the fiscal year.

The number of enlistments and reenlistments by branches of the service within the three fiscal years last past is shown in the following table:

Branch of service.	Fiscal year ended—								
	June 30, 1916.			June 30, 1915.			June 30, 1914.		
	Enlistments.	Reenlistments.	Total.	Enlistments.	Reenlistments.	Total.	Enlistments.	Reenlistments.	Total.
Staff departments	729	575	1,304	798	2,163	2,961	805	1,821	2,626
Engineers	314	73	387	571	294	865	396	277	673
Cavalry	6,892	807	7,699	7,305	2,320	9,625	8,777	1,761	10,538
Field Artillery	1,234	264	1,498	1,649	590	2,239	2,115	457	2,572
Coast Artillery Corps	5,751	1,246	6,997	7,365	3,978	11,343	6,542	2,820	9,362
Infantry	6,802	2,012	8,814	13,433	6,750	20,183	10,711	5,183	15,894
Miscellaneous	9	46	55	19	153	172	18	188	206
Total	21,731	5,023	26,754	31,140	16,248	47,388	29,364	12,507	41,871

The relative increase or decrease in the number of enlistments or reenlistments in the different branches of the service is more apparent when the numbers in the last preceding table are reduced to percentages of the total number of enlistments and reenlistments for each year compared. For that reason those percentages are shown in the table which follows:

Branches of service.	Percentages of total number of enlistments and reenlistments during the fiscal year ended—								
	June 30, 1916.			June 30, 1915.			June 30, 1914		
	Enlistments.	Reenlistments.	Total.	Enlistments.	Reenlistments.	Total.	Enlistments.	Reenlistments.	Total.
Staff departments	2.72	2.15	4.87	1.68	4.57	6.25	1.92	4.35	6.27
Engineers	1.17	.27	1.44	1.20	.62	1.82	.95	.66	1.61
Cavalry	25.76	3.01	28.77	15.41	4.90	20.31	20.96	4.21	25.17
Field Artillery	4.60	1.00	5.60	3.48	1.25	4.73	5.05	1.09	6.14
Coast Artillery Corps	21.50	4.66	26.16	15.54	8.40	23.94	15.62	6.73	22.35
Infantry	25.43	7.52	32.95	28.35	14.24	42.59	25.58	12.38	37.96
Miscellaneous	.04	.17	.21	.04	.32	.36	.05	.45	.50
Total	81.22	18.78	100.00	65.70	34.30	100.00	70.13	29.87	100.00

The comparison similar to that made in previous reports of the number of reenlistments in the several branches of the service with the authorized strength of those branches shows with greater accuracy the relative number of reenlistments. Therefore, the following table

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is presented showing the number of reenlistments to each 1,000 of the authorized enlisted strength of the several branches of the service within the three fiscal years last past:

Branches of service.	Number of reenlistments to each 1,000 of the authorized enlisted strength during the fiscal year ended June 30—		
	1916	1915	1914
Staff departments	49	171	178
Engineers	31	150	143
Cavalry	53	160	124
Field Artillery	46	105	83
Coast Artillery Corps	65	208	148
Infantry	42	158	126
Miscellaneous	73	24	30
The Army	49	167	139

The marked decrease in the relative number of reenlistments in each branch of the service within the past fiscal year is doubtless entirely due to the fact that existing law, as previously pointed out, precluded such reenlistments.

With the view of keeping fully informed as to the comparative efficiency of each of the various methods of advertising for recruits, the practice has been continued of requiring recruiting officers at stations to report whether the applications for enlistment made to them were, or were not, the result, wholly or in part, of any form of advertising, and, if so, of what form. The number of applications reported to have been the result of each of the several methods of advertising during the fiscal year ended June 30, 1916, is as follows:

Methods of advertising.	Number of applications
Sight of recruiting flag and station	50,011
In parks and squares	26,288
Recruiting posters	19,009
Canvass by recruiting parties	8,960
Recruiting circulars	6,970
Recruiting booklet, "The United States Army as a Career"	4,445
Newspaper advertising	3,715
Special circulars issued by recruiting officers	3,350
Handbills	3,253
Electric signs (2 districts)	500
Advertising cards	500
Personal letters from recruiting officers	480
News items in newspapers	446
Baseball team (1 district)	416
Slides in moving-picture houses (5 districts)	369
Signs on elevated stations (1 district)	115
Postal cards	20
Booklet, "Experience of a Recruit in the United States Army"	10
Photographs (1 district)	5
Total	128,862
Not the result of advertising	4,080
Total number of applicants reported upon	[1] 132,942

[1] This number is 148 less than the whole number of accepted and rejected applicants shown by trimonthly reports of recruiting (p. 37), no reports having been received in that number of cases.

Within the fiscal year covered by this report, as in previous years, the sight of the recruiting flag and station proved the most prolific

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method of advertising for recruits, the park and square parties and the recruiting posters being second and third, respectively.

The recruiting booklet issued in 1914 has continued to be a very effective means of advertising and of conveying information relative to the advantages received from an enlistment in the Army. A new edition of this booklet has been authorized, amended to conform with the provisions of the act of Congress approved June 3, 1916.

Another booklet which has been and which, it is thought, will continue to be a potent method of advertising for the recruiting service is the "Experience of a Recruit," published by the department within the past fiscal year. This booklet relates in a very readable and attractive manner the experience of a recruit who enlisted at Columbus Barracks, Ohio, and details explicitly his experience while at the depot. The personal statement of the recruit was so forceful, truthful, and favorable to the Army that it was published by the department without comment.

Another publication prepared and issued in connection with recruiting for the Regular Army is the pamphlet entitled "Guide to Civil Employment for Ex-Soldiers." In connection with the preparation of this publication information was obtained from each recruiting officer throughout the United States relative to civil employment in the respective recruiting districts that might be open to former soldiers of the Army discharged with character at least "Good." A full list of these employments arranged by States is included in the publication, together with instructions describing the method by which prospective applicants, former soldiers, may get in touch with prospective employers.

A copy of this publication will be placed in all permanent mess and soldiers' reading rooms and a copy will be given to every man leaving the service whose character is not less than "Good." This guide to civil employment has received favorable comment from all to whose attention it has been brought and it is believed that it will prove to be of great utility to former soldiers in enabling them to obtain employment and will act as a stimulus to recruiting by pointing out to the prospective applicant for enlistment the advantages possible for vocational training in the Army and assuring him that the military authorities are prepared to aid him in applying that vocational training in civil pursuits after he shall have left the Army.

Immediately upon the authorization of the increase in the Army March 17, 1916, advertising for recruits, which prior to that time had been largely restricted, was greatly expanded. As previously stated many new stations were opened, largely increasing the number of the recruiting flags and stations. Special circulars were issued. Newspaper advertising was increased. Additional booklets were printed and the recruiting officers were instructed to work without regard to hours in the effort to obtain recruits.

Under the provisions of the act of Congress approved June 3, 1916, section 27, the President is authorized in his discretion to utilize the services of the postmasters of the second, third, and fourth classes in procuring the enlistment of recruits for the Army. For the purpose of carrying out the provisions of this law the matter has been taken up with the Post Office Department with the view of securing the cooperation of that department and of the postmasters concerned.

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At the date of the preparation of this report information is not available from which a definite statement can be prepared showing the expense of the recruiting service for the fiscal year covered by this report, but constant effort has been maintained throughout the year to minimize expenses and eliminate all costs that were not absolutely required for the needs of the service. Telegraphic correspondence as heretofore has been carefully scrutinized with the view of reduction in tolls. The large number of recruiting stations previously maintained were kept closed during the greater portion of the fiscal year and were only reopened when the increase in the Army necessitated such reopening and a consequent increase in the recruiting personnel. Prior to that time the number of stations had been reduced greatly, with a consequent reduction in rentals, pay, and allowances for the personnel and other expenses incident to the maintenance of stations and the mileage expenses of officers.

As in previous years, applicants for enlistment who, after having been accepted at recruiting stations and sent to depots, fail through their own fault to enlist there, are required, when such applicants again apply at recruiting stations, to reimburse the Government for the expense incident to their former application and failure to enlist.

REGULAR ARMY RESERVE.

The act of August 24, 1912, provides for two classes of reservists—those furloughed to the Reserve after an active service of four years, or at the discretion of the Secretary of War after a service of three years, and those who were honorably discharged and voluntarily enlisted in the Reserve. Enlistment contracts entered into prior to November 1, 1912, did not contain, under the provisions of the law referred to, any provision for service in the Reserve, and consequently no furloughs to the Reserve could take place prior to November 1, 1915. For convenience, those furloughed to the Reserve will be designated class A reservists and those who voluntarily enlist in the Reserve will be designated class B reservists. While all furloughs to the Reserve during the year were made under the provisions of the act before referred to, it is proper to add that the act of June 3, 1916, provides that the enlistment period after November 1, 1916, shall be seven years, three years with the colors and four years in the Reserve, with a provision that if a soldier is considered sufficiently trained he may be furloughed to the Reserve after an active service of one year.

Between November 1, 1915, and June 30, 1916, the number of men furloughed to the Reserve was 4,626. Of those, 1 was discharged to enable him to complete his naturalization as a citizen of the United States and to accept employment under the Government, 2 were discharged because they had been sentenced to imprisonment by a civil court, and 2 died of disease, leaving 4,621 class A reservists on June 30, 1916.

Because of conditions along the Mexican border, on May 17, 1916, the War Department directed that all furloughs to the Reserve at the expiration of three years active service, except in the cases of members of the Coast Artillery Corps, be suspended. Consequently, there were very few furloughs to the Reserve during the last month and a half of the past fiscal year, and the foregoing figure does not

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represent the number that would have been in the Reserve on June 30 last under normal conditions.

The act of June 3, 1916, authorizes the payment of $2 per month to reservists and provides for their field training each year. This will enable the War Department to keep in closer touch with the reservists, and, as a physical examination is provided during their attendance at field training, the department will also be able to discharge the physically unfit. Heretofore members of the Reserve were carried as members of the organizations in which they were serving at the time of furlough, but now they are transferred or assigned to the arm or corps to which they belonged, and their records are sent to the commanding general of the military department in which they elect to reside. In the event of mobilization they are directed to report to the commanding general of the department in which they reside for assignment to organizations. On June 28, 1916, orders were issued to the several department commanders within the continental limits of the United States to mobilize the Regular Army Reserve, excepting members of the Coast Artillery Corps, for assignment to Regular Army units serving on the Mexican border in the Southern Department. No figures are available at this time from which the number of reservists who responded to the mobilization call can be ascertained, but it is purposed to give such figures in my next annual report.

On June 30, 1916, the class B reservists numbered 27 men. During the year 12 men enlisted in this class, and 4 were discharged upon expiration of service, making a net gain during the year of 8.

ENLISTED RESERVE CORPS.

For the purpose of securing a reserve of enlisted men for the Engineer, Signal, and Quartermaster Corps, and the Ordnance and Medical Departments, additional to those furloughed to the Reserve after completion of a term of active service in the Regular Army, an Enlisted Reserve Corps was authorized by section 55 of the act of June 3, 1916. The section referred to did not become effective until July 1, 1916.

The corps is to consist of such numbers of enlisted men of such grade or grades as may be designated by the President from time to time. The enlistments are to be for a period of four years and of grades similar to those prescribed for the Regular Army. Each member of the corps will be furnished with a certificate of enlistment by The Adjutant General of the Army, showing the rank and corps or department for which the recipient was enlisted. Regulations have been prepared for the administration of the corps and for the guidance of recruiting officers in procuring enlistments. Every effort will be made by this office to enlist men for the corps, and the result of those efforts will be submitted in the annual report for the fiscal year that will end June 30, 1917.

CAMPS OF INSTRUCTION.

Orders were issued early in the present calendar year to department commanders in the United States and Hawaii to make the necessary preparations for holding camps of instruction for officers and noncommissioned officers of the Organized Militia and joint camps for

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the several arms of the service of the Regular Army and the Organized Militia.

However, in view of the necessity for the dispatching of the greater part of the mobile Army in the United States to the Southern Department, for duty on the Mexican border, and the consequent lack of an adequate number of officers and troops of the Regular Army to conduct properly these camps, the instructions for the holding of the camps were rescinded with respect to all departments in the United States, except the Eastern Department. The commanding general of that department was authorized to hold such camps for the Cavalry of the Regular Army and Organized Militia as were practicable. Under this authority a camp of instruction for officers and noncommissioned officers of the Organized Militia was held at Fort Myer, Va., May 21–28, 1916, and a joint camp of instruction for the First Squadron, First Cavalry, Vermont National Guard (composed principally of cadets of the Norwich University), was held at Fort Ethan Allen, Vt., for about 10 days beginning June 4, 1916. As the reports of these camps have not as yet been received, no statement can be made at this time as to the number of officers and noncommissioned officers who attended these camps.

No reports have been received showing whether or not camps have been held in the Hawaiian Department.

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SMALL-ARMS FIRING.

Because the regular target-practice season varies in the several departments, and in some instances extends to the close of the calendar year, it is impracticable to make a statement showing the results of the practice for the year 1916 in this report.

The numbers of qualifications in the several organizations of the line of the Army in the grades of expert rifleman, sharpshooter, and marksman since 1909 are shown in the following table:

Grades.	Years.						
	1909	1910	1911	1912	1913	1914	1915
Expert riflemen	2,875	2,151	1,211	1,312	1,627	2,180	3,539
Sharpshooters	9,790	8,857	7,326	9,323	11,144	8,236	7,586
Marksmen	5,815	5,741	5,196	6,307	7,121	12,423	20,995

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DEMOBILIZATION OF THE SECOND DIVISION.

The Second Division, which was mobilized at Galveston and Texas City, Tex., in compliance with orders issued by the War Department, February 21 and 24, 1913, was ordered demobilized on October 18, 1915. Prior to the demobilization a hurricane occurred at the places named above which caused the death of 13 enlisted men and the destruction of the property of the troops encamped there.

Prior to the date of demobilization, the Twenty-seventh Infantry, one of the regiments of the Second Division, was sent to the Philippine Department for station, in place of the Twenty-fourth Infantry, returned to the United States.

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By the date set for the demobilization, the remaining organizations of the Second Division were, on various dates in September and October, 1915, transferred to the Southern Department for duty along the border.

THE RAID ON COLUMBUS, N. MEX., AND THE PUNITIVE EXPEDITION.

On the night of March 8–9, 1916, the Mexican outlaw, Francisco Villa, with a force variously estimated at from 500 to 1,000 men, crossed the border, in small detachments, about 3 miles west of the border line gate, and concentrated for an attack on the town of Columbus, N. Mex. The attack was made during hours of extreme darkness, it being the intention of Villa, according to information obtained by the military authorities, to loot the town after disposing of the garrison. In the fight which ensued, 7 American soldiers were killed and 2 officers and 5 soldiers were wounded; 8 civilians were killed, and 2 were wounded. Mexican bandits killed in the town, the camp, and on the border line, numbered 67 , while the wounded and captured numbered 7. Immediately after the raid, one troop of Cavalry mounted and pursued the Mexicans. The troop at the border line gate also mounted and struck the retreating Mexicans in the flank; the two troops then joining, continued the pursuit of the Mexicans south of the border for 12 miles, discontinuing the pursuit only when the ammunition was exhausted, and the horses and men, without water and almost exhausted, could continue no longer. The bandits, in the meantime, retreated in a southeasterly direction. The number of Mexicans killed in this running fight is estimated to be between 70 and 100; but no accurate estimate of the number wounded can be made. Much property and many animals were abandoned by the Mexicans in their flight.

On March 10, 1916, the commanding general, Southern Department, was directed to organize an adequate military force, under the command of Brig. Gen. John J. Pershing, with instructions to the latter to proceed promptly across the border in pursuit of the Mexican band of outlaws that had attacked Columbus. Under these instructions, two columns were organized, one being from Columbus and the other from Culberson's ranch. The advance of the Columbus column, consisting of 7 troops of the Thirteenth Cavalry, the Sixth and Sixteenth Infantry, Battery C, Sixth Field Artillery, and Ambulance Company No. 7, started, on March 15, on the road through Palomas, Ascension, and Corralitos, toward Casas Grandes. The Culberson column, consisting of the Seventh Cavalry, 10 troops of the Tenth Cavalry, and Battery B, Sixth Field Artillery, left the same night by the Ojitas route, arriving at Colonia Dublan, 4 miles north of Nueva Casas Grandes. on the night of March 17.

THE PARRAL INCIDENT.

During the pursuit of Villa and his followers, Maj. Frank Tompkins, Thirteenth Cavalry, and Troops K and M of that regiment, under command of Col. W. C. Brown, Tenth Cavalry, camped outside of the town of Parral, Mexico, and sent a detachment of soldiers to the town for the purpose of purchasing supplies, at about 11 o'clock a. m., April 12, 1916. Maj. Tompkins was cordially received by the higher civil and military officials. The Mexican general, Lozano, accom-

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panied Maj. Tompkins on the way to camp. On the outskirts of the town groups of native soldiers and civilians jeered, threw stones, and fired on the column. Maj. Tompkins took a defensive position north of the railroad, but was soon flanked by Mexican troops and forced to retire. The American troops continued to withdraw, to avoid further complications, until they reached Santa Cruz, 8 miles from Parral. Gen. Lozano attempted to control his men when the fighting first began, but failed. The known casualties were: Two American soldiers killed, 2 officers and 4 soldiers wounded, 1 soldier missing; 40 Mexican soldiers killed. The number of Mexican soldiers wounded is not known, although it is known that 1 Mexican civilian was wounded.

THE CARRIZAL INCIDENT.

Troops C and K, Tenth Cavalry, under the command of Capt. Charles T. Boyd, Tenth Cavalry, while on their way to Villa Ahumada on a scouting expedition, reached the town of Carrizal, Mexico, on the morning of June 21, 1916, and permission was sought from the commanding officer of the Mexican forces garrisoning the latter place to pass through the town in order to reach Villa Ahumada. Gen. Gomez, the Mexican commander, sent an officer of his command to the American troops, denying the latter the permission requested. During the conference Mexican troops began to move toward the flanks of the American troops. The latter assumed a defensive position, and in the engagement which ensued Capt. Charles T. Boyd and Lieut. Henry R. Adair, Tenth Cavalry, and 7 enlisted men were killed, and Capt. Lewis S. Morey, Tenth Cavalry, and 9 enlisted men were wounded. Twenty-three enlisted men of the Tenth Cavalry and 1 civilian interpreter were captured and sent to Chihuahua City, but they were subsequently returned to the United States. The estimated number of Mexicans killed, which included Gen. Gomez, is 39; the number of wounded is not known.

BANDIT RAIDS ACROSS THE MEXICAN BORDER.

In addition to the raid at Columbus, N. Mex., before referred to, several raids of more or less importance occurred during the period covered by this report, notably the raids at—

Glenn Spings, Tex., on May 5, 1916, the casualties being 3 American soldiers and 1 civilian killed; 3 American soldiers wounded. It is estimated that 2 Mexican bandits were killed, but the number of wounded is not known.

San Ygnacio, Tex., on June 15, 1916, the casualties being 4 American soldiers killed and 5 wounded; 6 Mexican bandits killed.

Near Fort Hancock, Tex., July 31, 1916, casualties being 1 American soldier and 1 civilian (United States customs inspector) killed and 1 American soldier wounded; 3 Mexicans killed and 3 captured by Mexican de facto Government troops.

CALL OF THE ORGANIZED MILITIA AND NATIONAL GUARD INTO THE SERVICE OF THE UNITED STATES.

Having in view the possibility of further aggression upon the territory of the United States and the necessity for the proper protection of the Mexican frontier, the President thought proper to exercise the

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authority vested in him by the Constitution and laws to call out the Organized Militia; consequently, on May 9, 1916, he issued a call through the governors of the States of Arizona, New Mexico, and Texas, and directed the concentration of the militia of those States at places to be designated by the commanding general of the Southern Department.

On the same date San Antonio, Columbus, and Douglas were designated as the places of concentration for the militia of Texas, New Mexico, and Arizona, respectively, and upon the arrival of the militia at the designated places of rendezvous the necessary procedure for their muster into the service of the United States under the provisions of the act of Congress approved January 21, 1903, as amended by the act of Congress, approved May 27, 1908, was at once entered upon and vigorously prosecuted, the greater part of the militia so called having been duly mustered into service before the close of the fiscal year.

It was also directed by the department that the Federal authorities assume the duty of recruiting for the militia in the United States service and that this office take the necessary action. In accordance with these directions the commanding general of the Southern Department was ordered, on May 27, 1916, to detail such officers and enlisted men from Texas militia mustered into the United States service as might be necessary to recruit the militia of Texas to full strength, and similar orders with respect to recruiting the militia of the other States concerned were issued at a later date. On June 3, 1916, the recommendation of the commanding general of the Southern Department that Fort Sam Houston be designated as a recruit rendezvous for that purpose was approved.

In accordance with these directions and orders the recruitment of the militia called into service as above set forth has proceeded as rapidly as conditions permitted and is still being prosecuted at the close of the period covered by this report.

The same reasons that caused the President to issue the call for militia on May 9, 1916, impelled him on June 18, 1916, to call into the service of the United States a large part of the Organized Militia and the National Guard of the other States of the Union and the District of Columbia, the call being duly issued on the date last mentioned through the governors of all the States concerned and the commanding general of the District of Columbia militia, a mobilization point for the militia of each State and the District of Columbia being designated in the call.

In the meantime the national defense act had been approved June 3, 1916, providing among other things for the transition of the Organized Militia of the several States and the District of Columbia to the National Guard by taking the oath prescribed in that act, and this transition was in progress in the several States when the call of June 18 was made. Upon the arrival of the militia at the mobilization points or places of rendezvous designated the necessary procedure for their induction into the military service of the United States was entered upon at once, those who had qualified as members of the National Guard being accepted into the service of the United States under the provisions of the act of Congress approved June 3, 1916, and the others being mustered into the service of the United States under the provisions of the act of Congress approved January 21, 1903, as amended by the act of Congress approved May 27, 1908.

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It is obvious that there is a large amount of work to be performed and many matters of detail involved in the concentration of the militia at the various mobilization points, in examining them individually and inducting them into the military service of the United States. While necessarily this work was not completed at the close of the fiscal year, satisfactory progress therein had been made, many of the organizations had been inducted into the Federal service, and the work connected therewith remaining undone was well in hand and was being expedited by all concerned.

Urged by the importance of having an adequate force on the border at the earliest practicable date, instructions were given on June 23, 1916, to the commanding generals of the Eastern, Central, and Western Departments that the moment any complete unit of militia had arrived at a State mobilization camp and the mustering officer had reported that the unit was reasonably equipped for field service, the particular organization concerned be sent at once to the point on the border designated by the commanding general of the Southern Department.

On July 31, 1916, the date of the latest complete returns received, the troops in the Southern Department consisted of 2,352 officers and 43,338 enlisted men of the Regular Army, and 5,058 officers and 102,077 enlisted men of the National Guard, making a total of 7,410 officers and 145,415 enlisted men. On the date given there were 1,910 officers and 38,229 enlisted men in mobilization camps, and 128 officers and 3,410 enlisted men of the National Guard serving in the Western Department not included in the foregoing figures, making the total strength of the National Guard in the Federal service on the date mentioned 7,096 officers and 143,716 enlisted men.

* * * * * * *

IDENTIFICATION SYSTEM.

The use of finger prints, photographs, and personal descriptions as a means of personal identification of enlisted men of the Regular Army was continued throughout the year. At the close of the year 354,296 finger-print records had been received in this office, 107,931 of those records having been made in cases of reenlistment, in which records made during the previous service of soldiers were on file. As has been indicated in previous annual reports of this office, it is desirable to obtain finger-print records of men claiming prior service, unless it is known positively at the post at which the man seeks reenlistment that he is the former soldier. This is necessary in detecting cases, several of which have been discovered, in which a man with a discharge certificate in his possession claimed the service represented by and enlisted under the name appearing in that certificate, although when his finger-print record was received in this office it was established beyond doubt that he was not the man he claimed to be, but was an impostor. On June 30, 1915, this office had on file the finger-print records of 246,365 individuals who were then or had been previously enlisted in the Regular Army.

During the fiscal year 414 cases of fraudulent enlistments of former deserters, general prisoners, and others were discovered through the finger-print system. Of these 414 cases, 17 had withdrawn from military control when the identity was established. Of the remaining 397 cases, 58 were held in service, 229 were dishonorably discharged

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and confined for various periods by sentences of courts-martial, 67 were discharged under paragraph 148½, Army Regulations, 5 were dropped from the rolls of the Army and delivered to the naval authorities, either as deserters from the Navy or Marine Corps, and in 38 cases no report of final disposition has been received.

By means of this system this office has identified also dead men who were former soldiers and whose identity could not be satisfactorily established in any other way, as well as civil offenders who sought to evade arrest for their crimes by enlisting in the Army under assumed names, and soldiers who left impressions of their fingers while in the act of committing some serious offense. As stated in previous reports the use of finger-print records undoubtedly has deterred many criminals from enlisting in the Army for the purpose of escaping detection and arrest. If the civil authorities have reason to suspect that an offender wanted by them has enlisted in the Army and will send his finger prints to this office, it can be determined promptly whether or not such person has enlisted, thereby enabling the civil authorities to apprehend persons wanted by them and materially aiding the War Department in carrying out its policy of preventing undesirable persons from serving in the Army.

The following cases are cited as examples of the utility of the finger prints in identifying dead men or malefactors whose identity could not be established otherwise:

A man was killed by a train in Iowa; his finger prints were taken and they finally reached this office. The man was found to be a former soldier. A somewhat similar case was that of a man killed by an elevated train in New York City. His features were so mutilated that they were beyond recognition. His finger prints were taken, and after they reached this office it was discovered that he was a former soldier. The body of a man killed during the storm at Galveston was supposed to be that of a soldier. The remains were so badly mutilated, however, that recognition was impossible, but after his finger prints were taken and forwarded to this office his identity was established beyond all doubt.

A soldier who broke into and robbed a tailor shop left finger prints on a pane of glass he broke. The glass was sent to this office, and by comparing the impression on the glass with records in this office his identity was established.

In addition to the finger-print records of the enlisted men of the Regular Army received during the year, finger-print records of members of the National Guard organizations have been received and filed in The Adjutant General's Office. Records from but few of those organizations had been received before the close of the fiscal year, but it is expected that complete data on this subject can be furnished in the next annual report.

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OFFICIAL RECORDS OF THE UNION AND CONFEDERATE ARMIES.

Eight sets of the Official Records of the Union and Confederate Armies, consisting of 1,024 books and 1,424 atlas plates, were distributed during the fiscal year to Senators, Representatives, and Delegates of the Fifty-seventh Congress, and to permanent libraries and educational institutions designated by those Senators, Representa-

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tives, and Delegates under the provisions of the act of Congress approved March 3, 1903. (32 Stat. L., 1145.)

Thirty-nine volumes of that publication were sold by The Adjutant General's Office during the fiscal year, the prices of the volumes aggregating $27.10.

ROSTER OF OFFICERS AND ENLISTED MEN OF THE UNION AND CONFEDERATE ARMIES.

The compilation of the Confederate part of the "Complete Roster of Officers and Enlisted Men of the Union and Confederate Armies," authorized and required to be compiled by a provision contained in the act of Congress approved February 25, 1903 (32 Stat. L., 884), was continued during the year as rapidly as the condition of the current business would permit. The legislation under which the compilation is being made does not require or authorize the publication of the proposed roster, but Congress no doubt intended that the authority for its publication should be given when the work of compilation shall have been completed or shall have been sufficiently advanced to justify the beginning of the publication.

The compilation of the Union part of the roster is comparatively complete, and, as stated in previous annual reports, if the publication is authorized by Congress, the preparation of printer's copy for the part relating to Union volunteer troops can be begun.

The compilation of the Confederate part will not be completed for any one State until the carding of all the Confederate hospital records shall have been completed.

COLLECTION OF REVOLUTIONARY WAR RECORDS.

The provision of the act of Congress approved March 2, 1913 (37 Stat. L., 723), which authorized and directed the Secretary of War to collect or copy and classify, with a view to publication, the scattered military records of the Revolutionary War, has been complied with as far as practicable with the money appropriated for that purpose. The entire sum of $25,000 appropriated by that act for collecting or copying the records has been expended and that part of the work was completely suspended early in June, 1915.

The total number of records copied is 30,522, of which 19,796 are from Massachusetts, 6,122 from Virginia, 4,073 from North Carolina, 527 from Connecticut, 2 from Kentucky, and 2 from the District of Columbia.

The collection of Revolutionary War military records in the possession of the War Department, including the records copied as indicated above, is so far from complete that it is now impracticable to arrange them for publication.

MEDALS OF HONOR.

During the fiscal year ended June 30, 1916, there were 9 medals of honor issued by the War Department. All of them were issued to replace medals of the old design. The whole number of awards of the congressional medal of honor up to and including June 30, 1916, was 2,622, the same number as shown in the last report. Medals

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of honor are issued by the War Department under the provision of the act of Congress approved April 23, 1904 (33 Stat. L., 274).

The act of June 3, 1916, provided for the appointment of a board of five general officers on the retired list of the Army for the purpose of investigating and reporting upon past awards of the so-called congressional medal of honor by or through the War Department, with a view to ascertain what, if any, medals of honor have been awarded or issued for any cause other than distinguished conduct by an officer or enlisted man in action involving actual conflict with the enemy. The act provides further that in any case in which the board shall find and report that said medal was issued for any cause other than distinguished conduct by an officer or enlisted man involving actual conflict with the enemy, the name of the recipient of said medal shall be stricken permanently from the official medal of honor list, and it shall be a misdemeanor for any person whose name has been stricken from said list to wear or publicly display said medal, and if such person is in the Army, he shall be required to return the medal to the War Department for cancellation. Pursuant to the provisions of the act cited Special Orders, No. 136, War Department, June 10, 1916, was issued convening a board of officers composed of Lieut. Gen. Nelson A. Miles, Lieut. Gen. Samuel B. M. Young, Maj. Gen. Joseph P. Sanger, Brig. Gen. Butler D. Price, and Brig. Gen. James N. Allison.

MEDAL OF HONOR ROLL.

The act of Congress approved April 27, 1916, established the "Army and Navy medal of honor roll," and provides for the issue of suitable certificates to persons who have received the medal for distinguished and hazardous deeds beyond the call of duty, performed in action, and grants a special pension of $10 a month for life to all such persons. Between the date of the passage of the act and the close of the fiscal year certificates had been issued by the War Department to 121 former officers and enlisted men of the Army.

CAMPAIGN, CERTIFICATE OF MERIT, AND SERVICE BADGES.

A summary of the campaigns for which the issue of campaign badges has been authorized is published in General Orders, No. 129, War Department, August 13, 1908. The issue of those badges, which are intended "to commemorate services which have been or shall hereafter be rendered in campaign," was authorized by General Orders, No. 4, War Department, January 11, 1905.

During the past fiscal year 181 names were added to the lists of officers and enlisted men who were found to be entitled to campaign badges, making a total of 42,881 badges issued to officers and enlisted men found to be entitled to those badges. Of these 31,685 were Philippine campaign badges, 7,259 Spanish campaign badges, 1,629 China campaign badges, 1,859 Indian campaign badges, and 449 Civil War campaign badges.

Campaign badges are a part of the uniform; they are sold to officers and issued to enlisted men in service by the Quartermaster Corps, on data furnished by The Adjutant General's Office.

It was decided by the Secretary of War in 1908 that campaign badges may be issued to members of the Organized Militia who are

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entitled to wear the uniform of the Army and whose service conforms to the requirements of General Orders, No. 129, before cited. Since the date of that decision, May 26, 1908, data have been furnished to the Quartermaster General of the Army in the cases of approximately 2,015 members of the Organized Militia who made applications for campaign badges.

In addition to the campaign badges before referred to, the issue of a service badge was authorized for service in the Army of Cuban Pacification by General Orders, No. 96, War Department, May 11, 1909. Data have been furnished to the Quartermaster General of the Army in the cases of 6,248 applications for those badges since the date of the order authorizing their issue.

By authority of the President, the issue of an "Army of Cuban Occupation Badge" was provided for in General Orders, No. 40, War Department, June 28, 1915. The badge is for issue to officers and enlisted men who rendered service with the Army of Cuban Occupation between July 18, 1898, and May 20, 1902. The order concerning these badges was not distributed generally until July, 1915. Data have been furnished to the Quartermaster General in the cases of 3,134 applications for these badges during this fiscal year.

The issue of a certificate of merit badge and ribbon as a part of the uniform to each officer and enlisted man in the service having a certificate of merit was authorized in General Orders, No. 4, War Department, January 11, 1915, as amended in General Orders, No. 129, War Department, August 13, 1908. At the close of this fiscal year 237 certificates of merit badges had been issued.

In order that former officers and soldiers now in civil life might be able to obtain the campaign badges and certificate of merit badges to which they would have been entitled if they were still in service, an arrangement was made with the United States Mint at Philadelphia by which these badges would be furnished by the mint at a nominal cost, covering expense of manufacture, upon receipt of certificates from The Adjutant General of the Army in verification of the claims.

This arrangement was completed in December, 1913, and since that date 19,417 applications for campaign badges and the Army of Cuban Pacification badge have been received in this office. In 16,551 of these cases the service was verified and certificates were issued accordingly, and in 2,866 cases the applications were denied. The campaigns and service for which these certificates were issued are as follows: Civil War, 5,498; Spanish War, 4,056; Philippine insurrection, 4,838; Indian wars, 778; China campaign, 321; Army of Cuban Pacification, 190; Army of Cuban Occupation, 870. In addition to these, certificates for purchase of certificate of merit badges were issued in 17 cases.

PHILIPPINE SERVICE MEDAL, CONGRESSIONAL.

The "Philippine service medal," authorized by the act of Congress approved June 29, 1906 (34 Stat. L., 621), is issued "to each of the several officers and enlisted men and families of such as may be dead, who, having volunteered and enlisted under the calls of the President for the War with Spain, served beyond the terms of their enlistment to help to suppress the Philippine insurrection, and who subse-

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quently received an honorable discharge from the Army of the United States, or who died prior to such discharge."

The medals are issued by the Quartermaster Corps on data furnished by The Adjutant General.

Up to and including June 30, 1915, statements as to whether or not service upon which the application was based was such as to authorize the issue of that medal had been made by The Adjutant General's Office in 7,478 cases. During the past fiscal year similar statements were made in 94 cases, making a total of 7,572 applications for Philippine service medals received since the enactment of the legislation before cited. In 6,529 of these cases the service was found to be such as to come within the provisions of the law, and in the remaining 1,043 cases the service was found to be such as to preclude the issue of the medal.

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H. P. McCAIN,
The Adjutant General.

The SECRETARY OF WAR.

REPORT OF THE INSPECTOR GENERAL.

WAR DEPARTMENT,
OFFICE OF THE INSPECTOR GENERAL,
Washington, September 26, 1916.

SIR: The following is a report relative to the work of the Inspector General's Department during the fiscal year ended June 30, 1916.

* * * * * * *

INSPECTIONS.

During the past fiscal year the inspection of the Military Establishment, though not entirely completed, was approximately so. In some of the geographical departments the remaining inspections had been arranged for and in some cases were under way when emergency orders were received for the immediate inspection of the mobilization camps of the National Guard, which had been called into the service of the United States. This was the latter part of June, at the very close of the fiscal year.

The prescribed inspections embraced every phase of military affairs, and included military posts, stations, and commands; camps of maneuver and instruction; the staff offices at department headquarters; the Military Academy and the service schools; the armories, arsenals, general hospitals, and the depots of the supply departments; the recruit depots and main recruiting stations; the Disciplinary Barracks and its branches; the numerous required inspections of Army transports upon arrival at or departure from ports; the cable boats, mine planters, and the harbor boats of the Quartermaster Corps; and the biennial inspection of such national cemeteries and ungarrisoned posts as became due during the year. Also included in the work of the fiscal year were the inspections of the Soldiers' Home,

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District of Columbia, and of the headquarters and 10 branches of the National Home for Disabled Volunteer Soldiers located in various parts of the country. The usual inspections of the money accountability of all disbursing officers of the Army and the very numerous inspections of unserviceable property presented for condemnation, were also made during the year.

The irregularities and deficiencies noted in these inspections were reported in due and prescribed form, and the necessary steps were promptly taken to secure proper and speedy remedial action.

In addition to the large number of regularly prescribed inspections enumerated above, the officers of the Inspector General's Department made during the year, under orders from the War Department or of department commanders, many special investigations, involving much time and labor, and they assisted in the annual tactical inspections of troops devolving upon department and brigade commanders under paragraphs 193 and 194, Army Regulations.

NEW DUTIES ASSIGNED TO THE DEPARTMENT.

The national defense act, approved June 3, 1916, adds some new duties to be performed by the Inspector General's Department, to wit:

SEC. 67. * * * The governor of each State and Territory and the commanding general of the National Guard of the District of Columbia, shall appoint, designate, or detail, subject to the approval of the Secretary of War, an officer of the National Guard of the State, Territory, or District of Columbia who shall be regarded as property and disbursing officer for the United States. * * * *Provided further*, That the Secretary of War shall cause an inspection of the accounts and records of the property and disbursing officer to be made by an inspector general of the Army at least once each year: * * *

SEC. 93. The Secretary of War shall cause an inspection to be made at least once each year by inspectors general, and if necessary by other officers, of the Regular Army, detailed by him for that purpose, to determine whether the amount and condition of the property in the hands of the National Guard is satisfactory; whether the National Guard is organized as hereinbefore prescribed; whether the officers and enlisted men possess the physical and other qualifications prescribed; whether the organization and the officers and enlisted men thereof are sufficiently armed, uniformed, equipped, and being trained and instructed for active duty in the field or coast defense, and whether the records are being kept in accordance with the requirements of this act. The reports of such inspections shall serve as the basis for deciding as to the issue to and retention by the National Guard of the military property provided for by this act, and for determining what organizations and individuals shall be considered as constituting parts of the National Guard within the meaning of this act.

The act says that these inspections of the National Guard shall be made by inspectors general, and if necessary by other officers, of the Regular Army detailed for that purpose. The presumption is that the detail of other officers will not be necessary except when an inspector general is not available to make the inspection.

When the National Guard was called into the service of the United States on June 18, 1916, inspections were at once begun by officers of the Inspector General's Department. These inspections had for their objects the following: The determining of the suitability of the camps, sanitary condition, care of sick, water supply, drainage, the efficiency of service of supply; and also inspections were made of

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the organizations of the National Guard on the following points, to wit:

(*a*) Law complied with as to organization.
(*b*) Food and preparation of same.
(*c*) Physical condition of men and officers.
(*d*) Typhoid immunization and smallpox vaccination.
(*e*) Equipment: Organization, individual, and camp.
(*f*) Fitness and sufficiency of uniform.
(*g*) Clothing (shoes, special).
(*h*) Wheeled transportation, including ambulances.
(*i*) Pack transportation.
(*j*) Officers' mounts.
(*k*) Field return of command.

Some of these inspections were made in the last fiscal year, but most of them were not made until after its close.

The considerable increase in the numerical strength of the Regular Army provided for by the national defense act of June 3, 1916, does not impose any new duties upon the Inspector General's Department, but it does add very materially to the work it has to do. As shown above, however, new duties, as well as much additional work, are added in connection with the inspection of the National Guard and of the accounts, etc., of the National Guard property and disbursing officers.

INSPECTOR GENERAL'S OFFICERS' RESERVE CORPS.

The War Department has authorized the appointment of 16 majors in the Inspector General's Reserve Corps, authorized by the act of June 3, 1916. All applicants for examination for appointment to these positions must have had at least one year's active service as an officer with some branch of the Army, the Volunteers, or the National Guard in the service of the United States. Applicants must be under 45 years of age, and must show themselves qualified for the position. Complete details as to the examinations required are given in General Orders, No. 32, War Department, 1916, which may be obtained from The Adjutant General of the Army.

CLERKS FOR THE INSPECTOR GENERAL'S OFFICE.

In order to keep up with the current work the present force of clerks in the Inspector General's Office has for some time past been compelled to work overtime every day and is still doing so. A great amount of additional work will soon be imposed upon these clerks by the new duties assigned to this department by the national defense act of June 3, 1916; indeed, the additional work has already begun to come in, and it will continue to come in in increasing volume. An estimate for the minimum number of clerks that will be required to do the work has been submitted, and it is hoped that it will receive favorable consideration.

DISCIPLINE.

Discipline, generally, throughout the Army, so far as reported, has been good.

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INSTRUCTION.

The troops appear to be generally well instructed. No serious criticisms have been made.

It has been reported that the work of the mobile troops in field training has been satisfactory; that the officers and men, generally, in camps of instruction, were eager to learn.

In bayonet combat and fencing it was reported that the mobile troops show marked improvement, notwithstanding the fact that the fencing outfits are still criticized as unsatisfactory. It is stated that many organizations have abandoned the outfits supplied them and have improvised substitutes.

As a general thing, earnest effort has been made by troops to acquire efficiency in signaling with the flag and general service code, and to attain the standard prescribed by paragraph 1562, Army Regulations, but it has been reported that the effort has not been generally successful. The success in mastering the semaphore, it is stated, has been much more encouraging.

It appears that, as a rule, the work of garrison schools for officers at the various posts has been satisfactory, but in post schools for enlisted men, in many instances, the results have not been satisfactory.

In the Philippine Department the consensus of opinion among Infantry officers is that the present allowance of ammunition is not sufficient to permit the thorough training of companies in combat practice. The opinion seems to be that an increase of about 100 rounds per man in the annual allowance would be of great benefit in the more thorough training of organizations.

SERVICE SCHOOLS.

Since the Spanish-American War both the development and the benefit to the Army of the service schools have been striking. These schools could, however, be better coordinated, and it is believed in such coordination is to be found a great possibility for the further increase of their usefulness.

This coordination involves the adoption of a policy whereby graduation with high standing from a lower school affords the only means of being admitted to the next higher. Hitherto the greatest obstacle to the adoption of such a policy appears to have been the feeling that it would necessitate more or less objectionable competition between officers of widely different rank and age. While the disadvantages of such competition are not to be questioned, it is not believed that the greatest benefit to the service should be sacrificed to suit the convenience of individuals. Moreover, in so far as concerns admissions to the War College, it is quite possible for the next 10 years to regulate admissions of officers of the grades of lieutenant colonel and colonel so as to avoid their engaging in preliminary competitions with officers of lower grades.

The following are suggested as guiding principles in the formulation of such a policy of coordination:

(*a*) Officers should pass through the special schools of their own arms before being admitted to the School of the Line.

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(*b*) The Staff College class should be selected as now provided.

(*c*) The field officers' course at Leavenworth should be limited to officers above the grade of major, and the length of the course should be extended to six months.

(*d*) The War College class should be limited to recommended graduates of the Staff College, except that for the next 10 years officers above the rank of major should be admitted, provided they have taken the field officers' course mentioned above, and been recommended for the War College course.

(*e*) The course at the Army Service Schools at Leavenworth should embrace and should be limited to a thorough study of all those matters pertaining to a division, studies relating to larger bodies of troops being left to the War College.

The logical development of such a policy would eventually limit selections for the General Staff and for certain of the staff departments to graduates of the War College. However, no special law or regulation would be necessary in bringing about such a result.

In addition to the above, it seems essential to consider without delay the expansion of the service schools to meet the needs created by the expansion of the Army and the National Guard.

The schools have heretofore been conducted on a scale which barely sufficed to meet the needs under the old establishment. The capacity of the schools to meet the necessities which result from the national defense act is totally inadequate. It is recommended that steps be taken to double, at least, the capacity of all service schools.

MANEUVERS.

The considerable number of troops now on or under orders to proceed to the Mexican border affords a much needed opportunity for conducting marches of concentration and maneuvers on a large scale. It is recommended that before the troops, including the National Guard, are returned to their home stations, there be conducted a series of concentration marches culminating in maneuvers. Each of these exercises should involve marches of not less than 100 miles, and the places for concentration should be so selected as to permit the assembly for maneuvers of the greatest possible number of units.

COOPERATION OF ARMS OF THE SERVICE.

The war abroad has accentuated the importance of close cooperation between the different arms, especially between Infantry and Field Artillery. Although the necessity of officers familiarizing themselves with the duties of arms other than their own has been realized in our service, it is believed that the steps thus far taken have been along theoretical rather than practical lines.

It is believed that at stations in which organizations of two or more arms are serving officers should be required to familiarize themselves with the powers and limitations of arms other than their own through actually accompanying units of such arms during small maneuvers, target practice, etc. Selected officers of Cavalry and Infantry should also be detailed for a period of a month or six weeks at the School of Fire for Field Artillery.

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COLONIAL REGIMENTS.

The department inspector of the Philippine Department reports that the officers of that department are about unanimous in the belief that the system of colonial regiments now in vogue is not desirable, the general opinion among them being that it is very injurious to the discipline, the training, and the general efficiency of organizations on foreign service. It is said that this system of a constantly changing personnel compels a feeling of uncertainty and lack of settled policy that is very harmful and is destructive of organization esprit.

RECRUITS.

No complaint has been received of the quality of the recruits received during the year.

The following extract from the report of the last annual inspection of Fort Oglethorpe, Ga., relative to the training of recruits, is interesting and instructive:

> Under a system inaugurated in this regiment [Eleventh Cavalry] about two years ago, all the recruits for the regiment are turned over to one troop for training before being permanently assigned to troops. The present recruit troop is Troop H, under the command of * * *, Eleventh Cavalry.
>
> At the time of my visit a class of recruits had just completed three months' training and was ready to be turned over to the other troops for permanent assignment. A careful inspection of the work of these recruits, mounted and dismounted, demonstrated beyond question that this method of training recruits is the proper one. Their knowledge of the duties of a soldier is, I believe, above that of the average enlisted man of a year's training assigned to a troop in the ordinary way. Their proficiency in riding and handling their arms mounted was especially noticeable.

QUARTERMASTER CORPS.

There have been no complaints as to the adequacy of the ration allowance and but few as to the quality of the ration or other commissary supplies.

The system of fuel supply has been reported as cumbersome and as involving much office work. Inspection reports show numerous complaints of the inadequacy of the fuel allowances properly to heat public buildings. This is especially the case on the western coast, and it has been urged that fuel allowances for the Western Department be further considered with a view to its special needs, since climatic conditions there differ so radically from other sections of the country in the same latitude.

UNIFORMS.

While changes in uniform are, in general, undesirable, and are so regarded in the service, it is believed that certain changes in the service coat are both desirable and necessary.

The service uniform should be designed for service in the field rather than in garrison. The discontinuance of the sweater makes it necessary to take the service coat into the field. For service in the field a coat must be loose at the neck and in general must be so cut, including a slit in the back of the skirt, as to permit freedom

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and ease of movement. That the present service coat, with its close-fitting collar and rigid cut, is unsuitable for hard work or even moderate exercise must be admitted.

From an examination of the present field uniform of other countries it is apparent that a suitable coat for field work can be given a military appearance quite as formal and as pleasing as that of our present service coat.

It is recommended that a suitable service coat be designed and adopted.

The opinion throughout the line of the Army seems to be in favor of a shirt that opens all the way down the front. It is believed that this change in the shirt will add to the comfort of the men, in warm weather especially.

ORDNANCE DEPARTMENT.

The war abroad has developed or emphasized the importance of new articles of arms and equipments, besides improvements in the old. The larger types of field guns and howitzers; trench mortars of the larger types, as artillery, and of the smaller types, as infantry weapons; new types and methods of employment of machine guns. hand grenades, steel caps, etc., and the use of and protection against gas, are all matters which claim our serious attention. The development and manufacture of new matériel of these kinds which are being undertaken by the Ordnance Department should be accompanied by practical tests and instruction, which can only be obtained by putting the new matériel in service as rapidly as it can be developed and supplied.

REPAIR SHOPS—QUARTERMASTER AND ORDNANCE.

Large quantities of quartermaster and ordnance property are undoubtedly lost to the Government through the lack of proper and timely repairs. This loss is due, it is believed, to a variety of such causes as lack of facilities in organizations for making proper repairs; lack of skill by organization mechanics; and, to some extent at least, lack of care and attention on the part of organization commanders. Losses due to lack of proper and timely repairs are especially apparent in all articles of canvas, webbing, and leather. In addition, in the Field Artillery the lack of timely repairs, made by expert mechanics, to the matériel results in greatly increased ultimate expenditures.

If suitable quartermaster and ordnance repair shops were established at all points at which a regiment or more is stationed it is believed that a substantial saving could be effected. Such shops should be equipped with all necessary machinery and should be provided with expert mechanics as foremen, the greater part of the actual labor of repair being done by the organization mechanics.

TRANSPORTATION FOR SANITARY TROOPS.

There is, no doubt, a universal recognition in the Army of the advisability, if not the absolute necessity, of providing motor transportation for sanitary troops. Probably the necessities attendant upon

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the present mobilization of a large number of troops upon the Mexican border will result in causing motor transportation for the sanitary troops to be supplied.

FIELD TRAINS.

It is believed that the field trains have been too greatly reduced. In fixing the allowances of wagons, etc., for field trains the primary object is, of course, mobility, but it is to be remembered that mobility may be as readily reduced by too great a reduction in the number of wagons allowed as by too great an increase in field trains. An unwarranted reduction in wagons tends to overloading in spite of honest efforts to enforce the regulations.

When our Army is compared to those of other nations the paucity of trained soldiers affords a striking illustration of the necessity of preserving the health and, in so far as possible, the comfort of our men when in the field. To this end it is believed that the surplus kits should be carried in the field trains, as was formerly the regulation. In so far as concerns the Infantry, it is essential that at least a spare pair of shoes be carried in the field trains.

On account of the general lack of ability in cooking among our people, it is particularly necessary to avoid individual cooking in our service. It is believed that in the early stages of the present war in Europe, rolling kitchens were frequently kept with their organizations until the arrival of the units upon the actual battlefield.

It is understood that several types of rolling kitchens are now under test in the Southern Department, and that the issue of kitchens to all organizations of the mobile forces only awaits the determination of the most suitable type. It is recommended that this be expedited and that coincident with the supply of the kitchens, regulations be issued providing that such kitchens shall habitually accompany their units on the march.

PUBLIC ANIMALS.

The requirements of active service on the border have resulted in having quite a number of public animals inspected and condemned.

The data called for on descriptive cards of public animals are said often to be incomplete, owing largely to failure on the part of purchasing officers to cause proper entries to be made on the cards.

REMOUNTS.

The following extract from the report of the last annual inspection of Fort Oglethorpe, Ga., relates to the training of remounts, and is reproduced as being, as is believed, worthy of consideration:

> All remounts for the regiment [Eleventh Cavalry] are now turned over to one troop (Troop G) to be trained for six months before being assigned to troops. The remounts now at the post have been under training for three months. The remounts, with one or two exceptions, appear to be of a good type. They are somewhat light in weight, but this defect may disappear after a year's training.
>
> The system of turning the remounts over to one troop for training is, I believe, the proper one to secure the best results.

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First Lieut. * * *, Eleventh Cavalry, is at present in command of the remount troop and is accomplishing excellent work. His own opinion of these remounts is as follows:

"The horses are very quiet and gentle; they show a very good degree of suppleness and activity, and they jump, freely and willingly, small hurdles and ditches of any character. I believe that by the end of another three months, when they are turned in to the other troops, they will be as well trained as is necessary for troop horses, and very much better than the average troop mount."

After witnessing the work of these remounts, I confirm the above estimate.

FARRIERS' AND HORSESHOERS' SCHOOL.

The following extract relative to the establishment of a post farriers' and horseshoers' school, which it is reported has been of great value, is also from the report of inspection of Fort Oglethorpe, Ga., viz:

Without interfering with the other instruction of the regiment [Eleventh Cavalry] a farriers' and horseshoers' school has been established under the direction of * * *, Eleventh Cavalry, assisted by the two veterinarians of the regiment. The class consists of 24 farriers and 24 horseshoers, the regular horseshoer and farrier from each troop, with an apprentice from each troop.

After a thorough investigation of this class, including the inspection of the work and examination of the men as to their theoretical and practical knowledge, I am of the opinion that this school is of great value to the regiment. It systematizes horseshoeing and treatment of diseases, and stimulates the interest of officers and men in these two important subjects.

PUBLIC FUNDS.

As a general rule the inspections of the accounts of disbursing officers of the Army have shown that the public funds have been honestly and efficiently administered.

POST EXCHANGES.

It has been reported that frequent irregularities of a more or less serious nature have been discovered in the inspection of post exchanges, and these were almost in every instance made possible by failure on the part of exchange officers, auditors, and exchange councils to properly perform their duties. The financial losses, in every case where they could be definitely determined, were recommended to be charged against the officers whose negligence was proven; in other cases where negligence was found it was recommended that it be noted on the efficiency records of the delinquent officers.

PAPER WORK.

Generally speaking, business is so conducted as to reduce paper work to a minimum and simplify administration so far as is practicable under the Government system of transacting business. Notwithstanding this fact, paper work in the Army still appears to be excessive, as always heretofore.

PRISONERS.

The system of parole of general prisoners and of probation of garrison prisoners appears to have been generally carried out, and apparently with good results.

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ARMY TRANSPORTS.

Reports show that the trans-Pacific transport service has been efficiently conducted; no complaints of any consequence have been received relative to any of the departments of this service, but on the contrary commanding officers of troops have generally commended the efficiency and courtesy of the ships' officers, the cleanliness of the ships, and the excellence of the accommodations and food. The life-saving apparatus is reported as ample and of the latest pattern.

DISCIPLINARY BARRACKS.

At the inspections of the Disciplinary Barracks and its branches the disciplinary companies were found to be well instructed and well trained, and affairs were in excellent condition.

RECRUIT DEPOTS.

At the various recruit depots it was found that the instruction of recruits was carried out in conformity with War Department regulations prescribed therefor, and the results obtained were good. The depots appeared to be carefully and efficiently administered.

Very respectfully,

E. A. GARLINGTON,
Inspector General.

The SECRETARY OF WAR.

REPORT OF THE JUDGE ADVOCATE GENERAL.

SEPTEMBER 14, 1916.

SIR: I submit the following report of the Judge Advocate General's Department for the year ending June 30, 1916.

REORGANIZATION OF THE JUDGE ADVOCATE GENERAL'S DEPARTMENT.

The recently enacted national defense act (sec. 8) reorganized the department by adding thereto 2 judge advocates with the rank of colonel, 4 judge advocates with the rank of lieutenant colonel, and 13 judge advocates with the rank of major, these increases to be made in five annual increments, as nearly as practicable one-fifth of the total increase in each grade to be added each year. The vacancies created or caused by the act distribute themselves under this rule as follows:

	1916	1917	1918	1919	1920
Original vacancies:					
Colonels	.....	1	.....	1	.....
Lieutenant colonels	1	1	.....	1	1
Majors	3	2	3	2	3
Appointment of majors to fill increments	4	4	3	4	4

The additional lieutenant colonelcy corresponding to this year's increment was filled by the promotion of Maj. Walter A. Bethel,

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the senior officer of his grade. The four vacancies in the grade of major corresponding to this year's increment have not yet been filled.

Additions to the clerical force of the Judge Advocate General's Office of one clerk class 3, and two clerks class 1, with an additional messenger, are authorized by the act of September 9, 1916.

REVISED ARTICLES OF WAR.

A project of revision of the Articles of War which has been pending before the War Department since December of 1903, and before Congress since April of 1912, was, with amendments of the original project, enacted into law as a rider to the Army appropriation act for the fiscal year ending June 30, 1917, approved August 29, 1916.

The first project of the revision of the Articles of War was prepared during the latter half of the calendar year of 1903. This project was submitted to department commanders and to a large number of specially selected officers for criticism and was exhaustively considered by a board of officers convened by the then commandant of the Army Service Schools, Maj. Gen. J. Franklin Bell, but was not transmitted to the Congress by the War Department. It was not until April, 1912, that the revision, perfected in the light of the criticism it had received, was submitted by the then Secretary of War, Mr. Stimson, to Congress as a basis of remedial legislation very much needed. The revision was introduced in the House on April 22, 1912, by the chairman of the House Military Committee, and in the Senate on April 25 by the chairman of the Senate Military Committee, and was by both Houses of Congress referred to their respective Committees on Military Affairs. Hearings were conducted by the House Military Committee covering the period from May 14 to May 27, 1912, but that committee, though receiving the revision favorably and suggesting a few amendments therein of a nature to improve the revision, did not report the revision as a whole. The Senate committee reported out 9 articles of the revision relating to the composition, constitution, and jurisdiction of courts-martial, and these articles were enacted as a part of the Army appropriation act approved March 2, 1913.

The Sixty-third Congress convened on April 7, 1913. The revision of the Articles of War, carrying the amendments suggested during the House Military Committee's hearings and certain others suggested by further study was introduced by the chairman of the Senate Military Committee on April 15, 1913, and referred to the Committee on Military Affairs. Hearings were subsequently held by a subcommittee of the Senate Military Committee, which reported the revision back to the full committee during the second session of the Sixty-third Congress, which reported the revision to the Senate on February 6, 1914, with certain amendments. The revision passed the Senate with further amendments on February 9, 1914, and upon reaching the House was referred to the Committee on Military Affairs, which took no action. On February 22, 1915, the Senate Military Committee included the revision in the then pending Army appropriation bill, and as a part of that bill the revision again passed the Senate February 23, 1915, and went to conference. The conferees, after reporting back to their respective houses two disagreements respecting the revision, finally rejected it and the bill passed without this particular rider.

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Shortly after the convening of the Sixty-fourth Congress, first session, the revision was again introduced in the Senate January 6, 1916, and hearings were conducted before a subcommittee of the Senate Military Committee. On February 9, 1916, the revision, with amendments, was favorably reported by the full committee to the Senate, and on March 9, 1916, the revision was again passed by the Senate. On reaching the House it went to the House Military Committee March 11, 1916, but it was not until June 29, 1916, that a subcommittee of the House convened to consider the revision. It does not appear that the subcommittee made any report upon the revision. Meantime the Senate Committee on Military Affairs, in reporting to the Senate the Army appropriation bill on July 3, 1916, included the Articles of War in the form they had passed the Senate on March 9, and with the articles included, the appropriation bill was passed on July 25. The House disagreed to the Senate amendments and the bill went to conference. On August 7 the conference report, embodying the Articles of War amended so as to exempt retired officers and soldiers from amenability thereto, and in certain other regards, was accepted by both Houses, and the bill went to the President for his approval. On August 18 the President vetoed the bill, basing his objections thereto on the amendment introduced by the conferees respecting retired officers. The appropriation bill was immediately reintroduced in the House without the Articles of War, and in that form was passed by the House on August 22. Upon reaching the Senate Military Committee that committee restored the Articles of War, with the changes necessary to meet the objections of the President and with certain other minor amendments, and in this form the bill was passed by the Senate. In the House a motion to concur in all the Senate amendments prevailed. The bill was approved by the President August 29, 1916.

With the exception of articles 4, 13, 14, 15, 29, 47, 49, and 92 which take effect immediately, the revision will go into effect on March 1, 1917. Meantime the Manual for Courts Martial will have to be revised and circulated throughout the Army. It is proposed to enter upon this work at once, and an attempt will be made to have the revised manual distributed throughout the Army by February 1, 1917, in order that there may be a month available for its study before the new code, as a code, takes effect.

GENERAL REVISION OF THE MILITARY LAWS.

A much larger task than the revision of the Articles of War is the revision and codification of all our military laws which this office has been directed to prepare in pursuance of authority granted in the Army appropriation act approved August 29, 1916. In 1911 this office submitted a report to the Secretary of War recommending that such a general revision be attempted, the revision to conform in scope and character to the revision and codification of the laws of the United States of a permanent and general nature directed by the act of March 3, 1901. Military legislation since 1878, enacted mainly in the form of riders to appropriation acts, is piecemeal legislation. Related legislation is widely separated and there is real difficulty within the military establishment in ascertaining the condition of the statute law on any subject. Experiencing the same difficulty in drafting the large amount of legislation enacted this year, the mili-

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tary committees readily accepted the suggestion for a comprehensive revision and codification and have provided an initial appropriation of $5,000 for paying the expense of clerical hire, printing, and other expenses incident to the making of the revision. The work has been already entered upon and substantial progress has been made with the chapter relating to organization of the Regular Army. The problem in that chapter is to restate the provisions of the new National Defense Act of June 3, 1916, on the subject of Regular Army organization, incorporating the unrepealed provisions of prior law and particularly of the act of February 2, 1901, and to make of it a consistent whole. It is hoped to have this much of the revision ready to submit with the preliminary report of progress which must be rendered to Congress on the first day of the ensuing session of that body. It is confidently expected that the general revision will be completed well within the two-year period allowed by law. The scope and character of the revision authorized by Congress will permit of the omission of redundant and obsolete matter, the making of such alterations as are necessary to reconcile contradictions, supply the omissions, and amend the imperfections of the original text; and permits also the embodiment in the revision of changes in the substance of existing law. It is hoped to take advantage of this authority to rewrite the statutes in the light of the administrative and judicial construction they have received, in the expectation that we may thereby reduce the number of references to the War Department and to this office for legal construction.

OTHER REVISION WORK.

The revision of the book on Military Reservations, etc., Title, Jurisdiction, etc., has been completed and the book published and distributed to the Army. The revision of Federal Aid in Domestic Disturbances was interrupted by the relief of Lieut. E.V. Cutrer from duty as instructor in law at West Point and his assignment to station in the Philippines, thus postponing indefinitely the completion of this work. On account of the large increase in the volume of work of this office, the revision of Winthrop's Military Law and Precedents has been suspended for many months, but with the increased personnel authorized by the national defense act it is hoped this work may be resumed and completed at an early date.

During the fiscal year ending June 30, 1916, this office has continued the preparation of the monthly bulletin giving a digest of the opinions of this office, decisions of the Comptroller of the Treasury and of the State and Federal courts, as well as of the opinions of the Attorney General on questions relating to the military service.

TRIALS IN CIVIL COURTS.

During the year a number of important insular cases, involving considerable labor, were prepared and presented by this office in the Supreme Court of the United States and in the Court of Appeals for the First Circuit, to which circuit the district of Porto Rico belongs. In addition, this office has represented the interests of the department in various Federal courts and in several State courts in a number of habeas corpus and injunction proceedings arising out of the call of the Organized Militia and National Guard into the military service of the United States, and involving novel, difficult, and im-

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portant questions growing out of the reorganization of the National Guard prescribed by the national defense act.

TRIALS BY GENERAL COURTS-MARTIAL.

There were 4,743 trials by general courts-martial during the year 1916, of which trials 337 resulted in acquittal, as against 5,339 for 1915 and 4,572 for 1914, showing a reduction of 11.1 per cent as against 1915 and an increase of 3.6 per cent over 1914.

DELAY IN GENERAL COURT-MARTIAL TRIALS.

While the judge advocates at the department headquarters have continued their efforts to reduce the delay between the arrest of the soldier under charges and the final action by the reviewing authority in his case, the unsettled conditions affecting the Army, requiring a large portion of the troops to be stationed on the Mexican border, away from their permanent stations, have caused the average number of days of delay for the year 1916 to increase to 36, as compared to 33 in 1915 and 34 in 1914. There has been a notable decrease in the delay this year of 12 days at West Point, while in the Eastern, Central, and Philippine Departments the average number of days remained the same as last year. The average delay in the Western Department was increased by 6 days, in the Southern Department by 3 days, and in the Hawaiian Department by 4 days over last year. These delays have been caused principally by the difficulty in securing witnesses and depositions from great distances, due to the frequent change of stationed troops during the year—sometimes persons belonging to organizations in the field in Mexico—and other causes which active duty in the field has served to counteract the efforts to reduce the average number of days; also, another primary counteracting cause to expeditious trials of cases has been the breaking up of courts by sending officers and organizations to the Southern Department, thereby increasing the period during 1916 over that for the two preceding years.

The following table shows the average delays in the several departments for the past five years:

	1912	1913	1914	1915	1916
	Days.	*Days.*	*Days.*	*Days.*	*Days.*
Eastern Department[1]	48	47	42	37	37
Central Department[1]	48	48	45	40	40
Western Department[1]	44	40	41	40	46
Southern Department	.....	44	39	39	42
Hawaiian Department	.....	36	32	22	26
Philippine Department[1]	25	38	30	37	37
Canal Zone	.....	.....	.....	.....	32
West Point	.....	.....	25	38	26
China expedition	.....	.....	.....	.....	.....
Average	41	40	34	33	36

[1]These were "Divisions" in 1912, and the figures given under that year so relate to them.

From July 1, 1915, to June 30, 1916, this office received, recorded, and filed 5,017 general courts-martial records; prepared 1,749 clemency reports, 255 reports on restoration to duty, 130 on citizenship, 128 on parole, and 4 on reenlistment, making a total of 7,283 cases handled. During this period the office loaned 451 general courts-martial records to the United States Disciplinary Barracks at

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Fort Leavenworth, Kans., 455 to the Pacific Branch, United States Disciplinary Barracks, Alcatraz, Cal., and 105 to the Atlantic Branch, Fort Jay, N. Y., making a total of 1,001.

TRIALS BY SPECIAL COURTS-MARTIAL.

During the year there were 2,153 trials by special courts-martial, of which trials 159 resulted in acquittal, as against 2,533 in 1915 and 1,953 in 1914, showing a reduction of 15 per cent as against 1915 and an increase of 9.2 per cent over 1914. There were also 88 general prisoners tried by special courts during the year, of which 3 were acquitted.

TRIALS BY SUMMARY COURTS-MARTIAL.

The total number of trials of enlisted men by summary courts-martial during the year 1916 was 37,877, of which trials 965 resulted in acquittals, as compared to 40,905 in 1915 and 36,856 in 1914, showing a decrease of 0.074 per cent as against 1915, and a decrease of 0 026 per cent as against 1914.

DESERTION.

The statistics show that there were 1,950 enlisted men tried by general courts-martial for desertion in 1916, as against 2,535 in 1915 and 2,097 in 1914, showing a decrease of 23 per cent as against 1915 and 7 per cent as against 1914. There were also 432 enlisted men tried by special courts-martial in 1916, as compared to 201 in 1915, indicating an increase of 114 per cent.

The desertions reported during the fiscal year 1916 amount to 2,382, or 2.40 per cent of the whole number of enlistment contracts in force during the year, as compared to 4,435 reported desertions and a percentage of 3.23 per cent for last year.

It should be noted that these figures include the cases in which the charge of desertion was removed as having been erroneously made, in which the accused was acquitted, in which he was convicted of the lesser included offense of absence without leave and retained or dishonorably discharged from the service.

The reports of the judge advocates show that during this year there were 5 acquittals, 105 cases in which charges were removed as having been erroneously made, 364 cases in which the soldier was convicted of the lesser included offense of absence without leave and retained in the service, and 114 cases in which the soldier was convicted of the lesser included offense of absence without leave and dishonorably discharged, making a total of 588 cases, which, subtracted from the number of desertions reported, leaves 1,794, or 1.81 per cent, of the total number of enlistment contracts in force during the year.

The following table exhibits the true as compared with the reported percentages for the past eight years.

Year.	Desertions reported.	Charges unsustained.	True number of desertions.	Reported percentages.	True percentages.
1909	4,993	311	4,682	4.97	4.66
1910	3,464	696	2,768	3.66	2.92
1911	2,504	380	2,124	2.28	1.93
1912	3,411	560	2,851	3.00	2.50
1913	4,451	871	3,580	4.15	3.34
1914	3,882	810	3,072	3.10	2.45
1915	4,435	795	3,640	3.23	2.65
1916	2,382	588	1,794	2.40	1.81

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REVISED PUNISHMENT ORDER.

The executive order published in War Department General Orders, No. 70, September 23, 1914, making important changes in the regulations governing punishment to be imposed by military tribunals has been in operation now about 22 months, and the reports received indicate that the failures to comply with its requirements have been decreasing until now they are quite unusual.

As to the figures which follow it may be said that in all but a small percentage of the cases in which detention of pay alone, forfeiture alone, or hard labor without confinement was imposed, or sentence of confinement was suspended, the soldier under former conditions would have been awarded a sentence including confinement.

Sentence of confinement imposed in cases not involving dishonorable discharge		3,143
Sentences of confinement suspended		79
Sentences of detention of pay alone		1,416
Sentences of forfeiture alone		14,437
Sentences of hard labor without confinement		674
Sentences of hard labor and forfeiture without confinement		846
Total without confinement		17,452

CIVIL WORK OF THE OFFICE.

The civil work of the office is indicated by the following summary classes of opinions and reports rendered and legal instruments prepared.

Questions involving appropriations		51
Examination of bonds		559
To secure issues of Government property to rifle clubs under the act of April 27, 1914	352	
To secure issues of Government property to schools under the act of April 27, 1914	66	
To secure issues of Government property to universities and colleges having courses in military training	34	
Of officers of the Quartermaster Corps	63	
Of quartermaster agents	7	
Of disbursing officers of the militia	28	
To secure the performance of contracts	3	
Indemnity bonds	5	
Of treasurer of Soldiers' Home	1	
Claims against the Government		50
Contracts		74
Clemency to general prisoners		1,749
Detached service		21
Discharge		51
Eight-hour law		64
Enlistment		16
Gratuities to disabled or deceased officers and soldiers		39
Instruments relating to Government property		118
Leases	49	
Revocable licenses	69	
Proposed legislation		92
Loans and sales of Government property		46
The militia		54
Navigable waters		54
Parole of general prisoners		128
Pay and allowances		72
Private debts of persons in the military service		29

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Permits for work in navigable waters		337
For wharves and similar structures, dredging, etc., under authority of section 10 of the act of March 3, 1899	116	
For bridges across waterways the navigable portions of which lie wholly within a single State, under authority of section 9 of said act	170	
For bridges across navigable waters of the United States, under the general bridge act of March 23, 1906, and special acts	30	
Notices to alter bridges which have become unreasonable obstructions to navigation, under authority of section 18 of the act of March 3, 1899	11	
For deposits of material in navigable waters, under authority of section 13 of the act of March 3, 1899	3	
For structures in navigable waters of Porto Rico, under authority of the act of June 11, 1906	7	
Government reservations		186
Reenlistment of discharged general prisoners		4
Restoration of general prisoners		255
Retirement		31
Questions concerning taxation		11
Volunteers		3
Transportation		47
Restoration of citizenship		130
Transfer of general prisoners		139
Miscellaneous opinions and reports (estimated)		1,100
Total of opinions, reports, and instruments		6,056

Total, 6,056, compared with 4,211 for last year, which shows an increase in volume of work of 43.81 per cent.

* * * * * * *

E. H. CROWDER,
Judge Advocate General.

The SECRETARY OF WAR.

REPORT OF THE QUARTERMASTER GENERAL.

WAR DEPARTMENT,
OFFICE OF THE QUARTERMASTER GENERAL OF THE ARMY,
Washington, September 5, 1916.

The SECRETARY OF WAR.

SIR: I have the honor to submit the annual report of the operations of the Quartermaster Corps for the fiscal year ended June 30, 1916.

* * * * * * *

SUPPLIES.

Statement of issues made during the fiscal year 1916.

Garrison, travel, reserve, trail, and field rations (36,487,325); average cost, 28.0124 cents	$10,220,989.99
Filipino ration (2,058,132); average cost, 17.4048 cents	358,213.85

Number, value, and average cost of rations, by geographical divisions, etc., issued during the fiscal year 1916.

Divisions.	Number of rations.	Value.	Average cost (cents).
United States (includes Canal Zone)	28,606,521	$8,009,825.88	28.00
Alaska	215,024	76,162.90	35.42
Hawaii	3,248,927	890,931.44	27.41
Philippines (American)	4,416,853	1,244,069.77	28.16
Total average cost:			
American	36,487,325	10,220,989.99	28.0124
Philippines (native)	2,058,132	358,213.85	17.4048
Canal Zone	2,334,048	782,548.77	33.52

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Number, value, and average cost of rations, by geographical divisions, etc., issued during the fiscal year 1916—Continued.

MILITIA.

Divisions.	Number of rations.	Value.	Average cost (cents).
June 21 to 25, inclusive, 5 days	106,000	$397,500.00	[1] 75.00
June 26 to 30, inclusive, 5 days	106,000	159,000.00	[1] 30.00
Total for militia, June 21 to 30, inclusive	106,000	556,500.00	[1] 52.50

[1] Per day.

Average cost of the ration, with and without transportation.—The average cost of the actual food included in the garrison ration (American) during the fiscal year 1916 was as follows:

	Cents.
At all posts or stations in the United States (including Alaska and Hawaii)	27.9912
At all posts or stations in the Philippines	28.1664
At all posts or stations in the United States and Philippines	28.0124

The cost of transportation charged on subsistence supplies was $364,143.74. Charging this amount to the total cost of the garrison ration issued, it gives for the fiscal year 1916 an increased cost for each ration of 0.998 cents, thus making the cost of the garrison ration delivered, including food and transportation, as follows:

	Cents.
At all posts or stations in the United States	28.9892
At all posts or stations in the Philippines	29.1644
At all posts or stations in the United States and Philippines	29.0104

Yearly and per diem cost of subsistence per man in the United States and the Philippines.

	Number of rations.	Daily average number of men.	Net cost.	Average cost per year.	Average cost per diem (cents).
Cost in United States	32,070,472	87,864	$8,976,920.22	$102.17	27.99
Cost in Philippines	6,474,985	17,739	1,602,283.62	90.33	24.74

Emergency ration.—Some difficulty has been experienced with the emergency ration and its final adoption, owing to a slight odor and rancidity which was noted after it had been packed for several months. This defect has been traced and overcome, and 20,000 of these emergency rations have been procured in order to give an elaborate try-out under differing conditions and in various sections, especially on the Mexican border and in the Philippines, where conditions should be the most trying, and if entirely satisfactory, a large quantity will be procured and kept as a reserve to meet possible needs.

The ration as devised by the food experts of the Department of Agriculture, working in conjunction with medical officers and quartermasters of the Army, is composed of the following: Raw and ground lean beef, 96 parts; flour, 96 parts; skim-milk powder, 64 parts; invert sugar, 3 parts. Salt to taste.

The nutritive qualities of the ration have been tested fully by the experts and pronounced satisfactory, and it only remains to test the keeping qualities, which may be determined only by long periods of storage under various conditions of climate and temperature.

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Restoration of certain articles to subsistence list.—In the act making appropriations for the support of the Army for the fiscal year 1913, certain articles from the appropriation "Subsistence of the Army" were transferred to the appropriations "Regular supplies," "Incidental expenses," and "Clothing, and camp and garrison equipage." The act making appropriations for support of the Army for the fiscal year 1916 authorized the disbursement of the appropriations named above, including "Subsistence of the Army," as one fund to be known as "Supplies, services, and transportation." In view of this it was deemed advisable in order to facilitate supply, and in order to avoid complaints as to deliveries and keeping the stock of the articles at posts up to the required quantities, to obtain authority to direct the purchase of the articles listed below with purchases of subsistence stores and supplies for posts on monthly and quarterly requisitions, as outlined in Circular 15, O. Q. M. G., July 6, 1916:

Basins, hand.
Bluing, ball.
Bluing, powdered.
Borax.
Brooms, whisk.
Brushes, hair.
Brushes, shaving.
Brushes, shoe.
Brushes, tooth.
Buttons, composition, large and small.
Buttons, collar.
Candles.
Candles, lantern.
Combs, medium.
Combs, pocket.
Electrosilicon.
Equipment, dressing, olive drab.
Equipment, dressing, white.
Handkerchiefs, linen.
Matches, safety.
Metal polish, paste.
Metal polish, powder.
Mugs, shaving, enameled.
Needles.
Polish, shoe, black, combination.
Polish, shoe, russet, combination.
Polish, shoe, russet, paste.
Razors.
Razor strops.
Salt, rock.
Shoestrings, linen, black, long.
Shoestrings, linen, black, short.
Shoestrings, linen, olive drab, long.
Shoestrings, linen, olive drab, short.
Soap, issue.
Soap, hand.
Soap, laundry.
Soap, scouring.
Soap, shaving.
Soap, toilet.
Starch, laundry.
Thread, cotton, black.
Thread, cotton, O. D.
Thread, cotton, white.
Thread, linen, black.
Thread, linen, white.
Thread, silk, black.
Towels, bath.
Towels, huckaback.
Toweling.

Rolling kitchens.—Quite a number of experiments or tests of various types of rolling kitchens, from both domestic and foreign sources, have been made during the year, and some under severe service conditions in Mexico and on the border. It is believed that a satisfactory type of American design has been found, and over 25 of the most promising designs have been procured and shipped to the Southern Department for a most elaborate field-service test. A special test is also being conducted at Fort Sam Houston, Tex., of certain models, under the direction of the department authorities of the Southern Department.

Among those tried out were several which developed the fact that they simply added to the amount of transportation that had to be maintained for an army in the field, and did not produce satisfactory results in the way of hot food for men on the march and on the firing line.

So far as information is obtainable or judgment can be depended upon, it is believed that the type that is finally adopted after additional and elaborate tests have been made will compare most favorably with the best designs of rolling kitchens in European armies.

Manual for Army bakers and Army cooks.—It was deemed advisable to have the Manual for Army Bakers and the Manual for Army Cooks revised and brought up to date. It was also desired when such

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revision was made to have these two manuals, which are so closely related and both of which are ordinarily used by instructors and students at the bakers' and cooks' school, combined into one volume, but divided into two parts. Such consolidation would reduce the expense of printing, eliminate the necessity for carrying so many publications for distribution, and enable the volume to be more readily carried or handled.

Capt. E. S. Wheeler, Fourth Field Artillery, who was well qualified to do the work, was selected and began the revision. He made considerable progress, but his tour of duty in the Quartermaster Corps expired before he could complete the work, and did not, in consequence, conclude it. In view of this, Capt. Leonard L. Deitrick, Seventh Cavalry, who was also well prepared to continue and complete the volume was selected for this duty and now has the work well on toward completion, and it is hoped to have it shortly ready for issue.

Mobilization of the National Guard.—On May 1, 1916, the National Guard of Texas, Arizona, and New Mexico was called into active service by order of the President, and on June 18, 1916, the remainder of the National Guard of the United States was called into active service by the President. It became necessary, therefore, to at once provide for their subsistence. Under law and regulations, when called into active service they are to be subsisted at the expense of the Government from the time of their arrival at company rendezvous. The subsistence of the National Guard is supervised and provided for by the military authorities of the State at company rendezvous, and also at State mobilization camps until sworn into the service, when they come under the supervision and control of the Federal authorities and are subsisted as are other troops of the Regular Army.

When the National Guard troops were transported from State mobilization camps to the Southern Department, or Texas border, kitchen cars were provided in which to prepare their food, or a baggage or box car was furnished, with a range installed by which the food could be prepared. When they were ready to be transported, 10 days' rations were furnished to make the journey to destination in the South and to afford them a small supply in addition, so as to provide against any delays and to care for their wants until arrangements could be made to meet their needs at destination in the regular way.

The subsistence of the troops, suddenly mobilized in camps and when transported to the Mexican border and after their arrival there, was accomplished in a satisfactory and successful manner by the department. This is borne out by the extensive inspections of the National Guard by inspectors, and in the inspection and reports of Maj. Gen. Tasker H. Bliss, who has borne testimony to the thorough and satisfactory manner in which the troops have been subsisted in Texas and on the border.

Isolated cases of inadequate subsistence have here and there been urged by some, but even if true, it is humanly impossible to overcome every objection and meet every possibility of hardship, but where any mistake or hardship has occurred it will probably be found traceable to lack of experience and judgment of the National Guard in not knowing how to care for themselves as regulars do,

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which is a most natural result, because of the fact that they have not had the necessary training and experience in this direction, but have done remarkably well, all things considered. Regular troops at posts, when traveling or when campaigning, have very rarely complained. This is principally due to the years of training and experience regular troops have had in caring for themselves, whereas the National Guard come from homes where they enjoy daily surroundings, comforts, and cooking accustomed to, and the change comes somewhat as a revulsion when they go from such homes and food and cooking to the camp and the food and life of the soldier. In short, most of the complaints as to the National Guard are due to or can be charged up against inexperience. Cooks who may be first-class men in a restaurant, club, or home, but without experience in the field cooking for hundreds and without the tools and equipment at hand they would have at home, can not be expected to meet every demand, and is one of the reasons for failure. Another reason is the inexperience of commanding officers in not knowing how to provide for their men. One company may be living in plenty on the regular ration, while another company may be hungry because of food spoiled through lack of proper care or preparation.

The number of meat inspectors of the Army is very limited. In consequence meat inspectors from the Agricultural Department were detailed, through the courtesy of that department, to cooperate with and assist the inspectors of the Army in safeguarding its meat supply by making a careful inspection of all fresh and canned meats before issue to and consumption by the troops.

Meat for use of the Army is rigidly inspected at the packing houses, the inspection beginning with the animal before it is killed and all through the after process by inspectors of the Agricultural Department stationed at the various packing houses throughout the country. In addition to this, meat inspectors and experts of the Quartermaster Corps are also stationed at the large packing centers, like Chicago, Kansas City, Omaha, San Francisco, and elsewhere where meat is being prepared or cured for the Army, and they also watch it through the whole process from the killing of the animal until turned over to the Government. Besides all this, the inspectors of the packing houses also closely inspect all meats.

In addition to the above safeguards, meat inspectors from the Agricultural Department have, with the cordial cooperation of that department, been ordered stationed at all places where large bodies of troops are located to inspect all meats before use by the troops.

With regard to other food articles or stores purchased for the Army, trained experts at depots and purchasing stations carefully inspect all supplies purchased, and at stations where troops are actually located, inspections are made by the officers who procure the supplies, who are assisted by trained inspectors if they are available.

The pure food and drugs act of 1906, and amendments since, as to the sale, etc., of poisoned or deleterious food, and also the meat-inspection law of 1906, and amendments since, against the use of meat that is "unsound, unhealthful, unwholesome, or otherwise unfit for human food," helps greatly to safeguard the food supply.

The health, contentment, and efficiency of troops are the first care of a commander. To make proper provision regarding the soldier

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demands the best thought and effort of his superiors at all times. The subsistence of the soldier is of vital importance, and it is admitted that the ration of the American soldier is the most liberal of that of any army in the world, and, as stated, proper subsistence or cooking of their food is of the greatest importance, for it is folly to train soldiers to the highest state of efficiency and then by lack of care or attention to their food for a short season prepare the way to put them out of condition at the most critical moment.

The Army has also the latest designs and devices for cooking food in the field and baking bread. The field bakery will compare most favorably with the very best types of this kind in any of the European armies of to-day, and the bread produced is uniformly excellent. There are, too, trained cooks and bakers who prepare the food and bake the bread for the Army. These trained experts are taught in the various bakers' and cooks' schools that are established at designated places in the United States, in the Hawaiian Territory, in the Philippines, and it is hoped shortly to establish a school in Panama.

To meet any possible exigency that might arise, it has been necessary to procure and place in stock at the depots at El Paso, Fort Sam Houston, Harlingen, Columbus, Nogales, etc., large quantities of articles of the ration and other subsistence supplies for troops on the border and in the Southern Department. The corps has been able to practically meet every demand made upon it, so far as the food supply of the Army is concerned.

Some complaints have reached this office as to the poor quality and insufficiency of the food furnished various militia organizations. After investigation of these cases, the records indicate that practically all the complaints so far as have been investigated have been unfounded, or due to the inexperience of cooks of the National Guard or lack of experience and training of the National Guard in taking care of themselves, though, as previously stated, they have done remarkably well in this respect. The following indicates the character of the complaints and some of the replies thereto:

Hon. Hoke Smith, United States Senate; Hon. Carl Vinson, House of Representatives; and Mr. C. T. Wiebis, reported to this office that there was a shortage of food, etc., also that the food was not of good quality at the Georgia mobilization camp at Macon, Ga. The complaints were immediately referred for investigation, and the reports of the senior mustering officer at the camp at Macon, Ga., indicated that at no time were the rations inadequate, but that they were ample and of excellent quality. Later on Senator Smith submitted a communication from the Hon. Hooper Alexander, United States attorney for the northern district of Georgia, who stated that he had visited Camp Harris and found the troops in fine spirits and prospering in every way. Mr. Alexander's letter is as follows:

AUGUST 7, 1916.

Hon. HOKE SMITH,
United States Senate, Washington, D. C.

MY DEAR SENATOR: I see by the papers that the customary crop of critics is complaining at the administration of the War Department and its treatment of the militia.

It has occurred to me that the Secretary of War may be interested to know that the Georgia troops are in fine spirits and prospering in every way. I went to Camp Harris a few days ago after they were concentrated there and personally inspected the cooking arrangements and other camp facilities and I was delighted with the situation.

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I have a boy 19 years old, who enlisted with the Fifth Georgia Regiment and is now in camp. He came here last night on a 36-hour furlough. He has gained 14 pounds while in camp, and reports to me that everything there, especially the food, is as nearly perfect as could be asked. He seems delighted with the situation, and says that practically every man with the Georgia Brigade feels the same way about it. There are a few critics there as you will find them everywhere, but I am sure that there is no ground for criticising the War Department, at least so far as concerns the Georgia troops.

I am writing this because it may be of interest to the Secretary of War, if you should see fit to communicate it to him.

Respectfully,

HOOPER ALEXANDER.

This communication was entirely voluntary and unsolicited, and Senator Smith, who had previously deplored the alleged poor food and conditions, stated that he was very much gratified to receive this letter and to submit it to the Secretary of War, as he had very much confidence in the statements of Mr. Alexander.

Mr. Frank G. Gorrell, secretary of the National Canners Association, forwarded a clipping to this office from the New York World relative to the poisoning of the Massachusetts Militia by canned salmon. A thorough investigation of this case disclosed the fact that several cans of this salmon were brought by the Massachusetts Militia with them from their mobilization camp at Framingham, Mass. Through the carelessness of the cook a "swelled" can was mixed with other cans containing good food furnished by the Army authorities, and the mixing of the bad with the good food was the cause of the illness of the troops. The illness was the direct result of lack of judgment and experience of militia cooks. Steps were immediately taken by the authorities to prevent a recurrence of cases of this character, and orders were issued from this office looking to the prevention of similar cases.

Mr. G. W. Pratt submitted a clipping from Mr. McCann regarding the bad food furnished the militia on the border, particularly the New York troops. A thorough investigation of this matter was made, and the commanding general of the New York Division reported that the complaint was entirely without foundation and attached complete statements of company commander, mess sergeant, first sergeant, and cook of Company H, Seventh New York Infantry (where it was alleged the bad food had been served), indicating that the food furnished was of the best quality and that the complaints were entirely unfounded.

But one case reached this office and was investigated, wherein the complaint of lack of food was well founded. This occurred in complaint of the Hon. H. P. Snyder, House of Representatives, who reported to this office that a member of Troop G, First New York Cavalry, on his way to the border by train, had been without food for 24 hours. On investigation it was ascertained that the officer in charge failed to provide for subsistence at the time. This failure was due to lack of experience and poor judgment on the part of the officer, for he should have met the emergency promptly by procuring the necessary food if his rations were exhausted, at any eating station, and made a charge against the Government the same as he would or should have done if his men had been delayed and the ration supplies were all consumed before reaching his destination, as is frequently the case with the Regular Army. So that while the incident is greatly regretted, it seems to have been due to the fact that the

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militia officer in charge was lacking in experience and initiative in caring for his men.

But, as previously stated, it is humanly impossible to provide against every contingency, mistake, or even hardship in a great movement of this character.

In conclusion it may be well to repeat that Maj. Gen. Tasker H. Bliss, United States Army, Assistant Chief of Staff, made an extensive investigation of practically all the militia organizations encamped on the Mexican border, and reported that the rations were ample and of excellent quality, and that a general spirit of contentment prevailed among the troops.

Value of miscellaneous supplies issued to the militia, fiscal year 1916, $38,446.65.

Losses.—The following losses occurred during the year, and are based on the losses for nine months, which is the latest data available:

Ordinary wastage		$21,109.92
Deterioration		166,701.34
Loss in transit		2,001.80
Loss—carriers and sellers responsible		4,747.60
Theft or fire		549.95
Miscellaneous		34,034.28
Losses on account of Galveston hurricane		10,751.90
Issued to replace losses to troops on account of Galveston hurricane		11,769.86
Total		251,666.65
Deduct gains	$23,226.68	
Deduct sales at auction	32,750.36	
Deduct reclamation made on carriers and sellers	4,747.60	
Total		60,724.64
Total net losses		190,942.01
Issues to destitutes on account of hurricane, etc		3,041.04

The excessive losses are due to the sale of surplus stock of the Corregidor Reserve and to the Galveston hurricane.

CLOTHING AND EQUIPAGE.

FINANCE.

Appropriation by Congress for the purchase and manufacture of clothing and equipage for the fiscal year ending June 30, 1916:		
Original amount		$6,693,000.00
Deficiency		5,014,702.00
Total		11,707,702.00
Credit on account of sales to officers, etc		220,000.00

Collections and disbursements in connection with the settlement of the clothing accounts of the enlisted men of the Army.—The following are the collections from and disbursements to the enlisted men of the Army in the settlement of their clothing accounts during the period specified, viz:

Collections on account of clothing drawn in excess of established allowances:	
Appropriation, 1915—	
From Apr. 1, 1915, to June 30, 1915	$13,107.63
From July 1, 1915, to Mar. 31, 1916	76,349.91
Appropriation, 1916, from July 1, 1915, to Mar. 31, 1916	98,783.52
Total collections	188,241.06

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Payments to enlisted men at time of discharge from service on account of clothing undrawn:	
Appropriation, 1915—	
From Apr. 1, 1915, to June 30, 1915	$304,432.58
From July 1, 1915, to Mar. 31, 1916	457,705.37
Total disbursements	762,137.95

From the above it will readily be seen that the allowance of clothing established to properly clothe the enlisted men of the Army under all service conditions is ample.

Issues to the militia.—There were issued to the governors of the several States and Territories and to the commanding general of the District of Columbia Militia, for use of the Organized Militia during the fiscal year ending June 30, 1916, clothing and equipage supplies to the total value of $1,098,813.15, of which $931,104.08 was on account of issues under the act of May 27, 1908, and $167,709.07 under the act of June 22, 1906, amending section 1661, Revised Statutes.

The issues of these supplies were made upon requisitions submitted by the governors of the respective States and Territories and the commanding general District of Columbia Militia, duly approved by the Secretary of War. Reimbursements for the value of the property issued have been and will, as soon as the receipts for the same shall have been received by the officer making the issues, be submitted to the Militia Bureau for transmission to the Auditor for the War Department, in order that the appropriation "Clothing, and camp and garrison equipage" may receive proper credit.

Sales to the militia.—The amount of money realized during the fiscal year ending June 30, 1916, from sales of clothing and equipage supplies to the governors of the States and Territories, and the commanding general District of Columbia Militia, under the act of Congress approved January 21, 1903, amounted to $70,352.85, which sum has been placed to the credit of the appropriation "Clothing, and camp and garrison equipage."

Sales of clothing and equipage to various departments and bureaus of the Government.—By special authority of the Secretary of War, under the provisions of paragraph 671, Army Regulations, 1913, there were sold during the fiscal year ending June 30, 1916, to various departments and bureaus of the Government, clothing and equipage supplies to the value of $87,301.09. The amounts have been or will be credited to the appropriation "Clothing, and camp and garrison equipage."

Sales of clothing and equipage supplies to military schools and colleges.—There were sold during the fiscal year ending June 30, 1916, under the provisions of the act approved July 17, 1914, to military schools and colleges at which officers of the Army are detailed as professors of military science and tactics, clothing and equipage supplies to the value of $9,363.75. The amounts have been placed to the credit of the appropriation "Clothing, and camp and garrison equipage."

Sales at auction.—There was realized at the general depots of the Quartermaster Corps during the past fiscal year from sales of condemned and unserviceable articles of clothing and equipage and cuttings the total sum of $27,532.53. The expenses connected with making these sales amounted to $192.04, which were deducted from the amount realized, leaving a balance of $27,340.49, which, under the

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law, was covered into the Treasury of the United States, credited to "Miscellaneous receipts."

Field supply depots.—For statement of quantities of clothing and equipage which, by direction of the Secretary of War, as stated in communication from the office of The Adjutant General, of February 23, 1911, are to be kept available in field supply depot No. 1, also the quantities on hand June 30, 1916, see Exhibit No. 12. It will be seen that most of the supplies have during the recent mobilization of the National Guard been drawn upon and that the articles constituting the reserve supply have virtually become exhausted and no great dependence can be placed upon the same.

Clothing and equipage supplies for the National Guard called out by the President of the United States.—The Secretary of War on June 18, 1916, under instructions from the President, called upon each of the governors of the States (except the governors of Texas, New Mexico, and Arizona, the militia of which States were called into service upon a previous call), by telegraph, and directed the assembling at the respective State mobilization points, or at such points as might be designated by the commanding generals of the respective military departments, of such organizations as were deemed necessary.

Realizing that immediate steps should be taken to promptly and efficiently furnish the troops thus called into service with the necessary clothing and equipage supplies for field service, at war strength, all the supplies available, together with such as under special authority of the Secretary of War were purchased at the general depots, either in open market or after inviting proposals upon short notice, were placed under the control of the several department commanders. The States in the Western Department to be supplied from the depot at San Francisco, Cal., those in the Central and Southern Departments from the depot at St. Louis, Mo., and the States located in the east from the depot at Philadelphia, Pa.

The action in making these purchases was due solely to the fact that the stock of clothing and equipage held in reserve proved to be inadequate to meet the pressing demands so suddenly made upon the corps, the limited appropriations by Congress heretofore made for the procurement of a reserve supply not having been sufficient.

The following is a statement showing the amounts estimated by the clothing supply branch as being required for reserve supplies of clothing and equipage for the fiscal years 1909 to 1916, inclusive, the amounts included in the annual estimates, and the amounts appropriated by Congress for the purpose:

Fiscal year.	Amount estimated by clothing supply branch.	Amount included in estimate.	Amount appropriated by Congress.
1909	$2,500,000.00	$2,500,000.00	$1,274,873.86
1910	1,549,615.61	1,549,615.61	1,549,615.61
1911	1,494,653.64	494,653.64	494,653.64
1912	332,041.76	332,041.76	332,041.76
1913	2,051,889.34	131,700.00	.....
1914	1,596,893.79	596,893.79	244,958.79
1915	2,906,064.45	225,389.95	225,389.95
1916	225,000.00	200,000.00	.....
Total	12,656,158.59	6,030,294.75	4,121,533.61

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The stock on hand at the general depots had been further reduced by issues to equip the training camps, no funds having heretofore been appropriated to cover cost of such supplies.

Purchase of clothing for special issue to troops in Alaska.—Under existing orders the troops stationed in Alaska perform duties which require that they should be supplied clothing of a specially warm character. The following is a statement of the articles procured during the past fiscal year, amounting in the aggregate to $8,758.46.

Articles.	Number.	Cost.	Articles.	Number.	Cost.
Boots, rubber, short, pair	50	$142.00	Parkas, duck	24	$95.52
Caps, fur	50	267.50	Parkas, reindeer	2	75.00
Drawers, wool, knit, pair	750	1,380.00	Shoes, felt, pair	230	687.90
Gauntlets, horsehide, pair	220	239.80	Shoe pacs, pair	400	1,472.00
Gloves, horsehide, pair	330	455.40	Slickers	30	56.40
Gloves, Scotch wool, pair	600	456.00	Stockings, German, pair	530	596.25
Hats, Sou'wester	70	24.50	Sweaters	145	539.40
Insoles, felt, pair	700	164.29	Trousers, duck, pair	500	1,375.00
Mittens, Siwash, pair	50	144.50	Undershirts, wool, knit	250	460.00
Mucklucks, water boots, pair	24	55.00			
Mucklucks, winter boots, pair	24	72.00	Total		8,758.46

Trial of clothing manufactured from wool and cotton mixed materials.—Reports upon the cotton and wool mixed service clothing issued for trial by troops stationed at Fort Myer, Va., referred to in the annual report for the fiscal year ending June 30, 1915, have been received. The tenor of these reports, while favorable, is not quite conclusive, as the clothing has not been subjected to wear under field-service conditions. Judging from reports received upon the olive-drab shirts, which are now exclusively manufactured from flannel composed of 75 per cent wool and 25 per cent cotton, there is no doubt that the olive-drab service clothing will prove equally as acceptable and serviceable.

Scarcity of dyestuffs.—As stated in the last annual report, great difficulties were experienced by manufacturers in obtaining the dyestuffs needed to produce the fast colors and shades for the olive-drab woolen and cotton fabrics entering into the manufacture of materials for the Army.

On account of the European war and consequent impossibility of importing the dyes which have heretofore been procured from abroad, the situation became quite serious.

In connection with the purchase of the clothing materials required by the Quartermaster Corps, especially since January last, manufacturers represented that it would be impracticable to obtain the needed dyes, which had entirely disappeared from the American market.

Contractors have, however, been able to produce the fabrics, and the situation seems to have been somewhat relieved by the ability of American manufacturers to produce suitable dyestuffs in the United States.

The department no longer insists upon an olive-drab color for stockings, it having been decided to purchase only the commercial article, thereby giving relief to manufacturers of textile fabrics.

Brown mixed woolens.—In view of the scarcity of dyestuffs referred to, this office realized that timely steps should be taken to produce a fabric that would prove satisfactory as a service uniform and at the

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same time eliminate the uncertainty of depending upon dyes of foreign production, and samples of brown and gray mixed meltons were procured from various woolen mills, and it was demonstrated that, should occasion arise, there will be no difficulty in obtaining woolen cloths in sufficient quantities.

Revision of specifications for woolen fabrics.—It having been found advisable to change the standards and specifications for woolen fabrics entering into the manufacture of uniforms, the specifications governing the purchase of such materials have been revised by eliminating the 14 and 17 ounce olive-drab meltons and substituting therefor a 16-ounce melton for service coats and breeches.

Changes in uniform.—For the purpose of making a study of and reporting upon the question of the uniform and clothing allowances of enlisted men, a board of officers was appointed under the provisions of War Department Special Orders, No. 39, February 16, 1916, as amended by Special Orders, Nos. 49 and 80, of February 29 and April 5, c. s.

It is understood that the board referred to has rendered its report and submitted the same to The Adjutant General. Up to the present time this office has not been advised of the action taken upon the recommendations of the board of officers referred to.

Previous to the appointment of the board this office, on several occasions during the past year, recommended the abolishment of the blue uniform as an economic measure and the discontinuance of the clothing money allowance, it having been found impracticable to establish an allowance that would be equitable under existing service conditions.

Unauthorized wearing of uniforms.—The act of Congress approved June 3, 1916 (sec. 125), provides that it shall be unlawful for any person not an officer or enlisted man of the United States Army, Navy, or Marine Corps to wear the duly prescribed uniform of the United States Army, Navy, or Marine Corps, or any distinctive part of such uniforms, or a uniform any part of which is similar to a distinctive part of the duly prescribed uniform of the United States Army, Navy, or Marine Corps. This provision is not, however, to be construed so as to prevent officers or enlisted men of the National Guard from wearing, in pursuance of law and regulations, the uniform lawfully prescribed to be worn by such officers or enlisted men of the National Guard; members of the organization known as the Boy Scouts, or such other organizations as the Secretary of War may designate, are exempted from the provisions of this act.

Several organizations having made inquiry as to whether their status was such as to prevent them from wearing the authorized uniform of the Army, The Adjutant General, by direction of the Secretary of War, has informed the representatives of such organizations that a compliance with the following requirements, with the exception of a distinctive hat band, would meet with the approval of the War Department, viz:

Organizations must be purely military.

They must be composed of citizens of the United States, or those who have declared their intention to become citizens.

The object of the organization must be to so drill and train its members that they may be better able to take their places in the large armies that would be called in case of great national emergency.

The organization must be armed with the rifle or other arm approved by the War Department.

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The drill and training must be according to the prescribed regulations and manuals of the War Department.

Some mark or insignia of a distinctive character must be adopted to be worn on the blouse or coat, or shirt when blouse or coat is not worn; also a distinctive hatband in lieu of a cord must be worn.

Officer must not wear the insignia of rank prescribed for officers of the Army, Navy, or Marine Corps.

The insignia of rank prescribed for officers of educational institutions are recommended, with reference to which a circular now in process of publication will be issued in a few weeks and furnished to the different educational institutions and military societies.

Field shoes.—Realizing the fact that on account of the numerous complaints that the regulation shoe, while excellent in all other respects, was too light in construction and material, and consequently did not possess the necessary wearing qualities for service in the field, this office ordered the purchase and issue to troops, for preliminary trial, of 600 pairs conforming in pattern and substance, with minor modifications, to those furnished by American manufacturers to the French and Belgian Armies during the present European war. The uppers are made of undressed veal or side leather. The soles are of adequate thickness and are studded with hobnails. The shoes are made upon the same lasts as heretofore used in the manufacture of Army shoes, and in regard to which no complaints have reached this office.

There are now being purchased under contracts at the Boston, Philadelphia, and St. Louis depots 265,000 pairs, at an average cost of $3.69 per pair, and they are dispatched to the troops as fast as accepted from the contractor.

Overhauling and repairing of worn-out shoes.—It having been demonstrated that in many cases the worn-out shoes discarded by the enlisted men could be overhauled and remodeled at a reasonable price, thus rendering them fit for further service, the question of retaining the ownership of the shoes by the Government was submitted for consideration by higher authority. The work connected with the repair of such shoes, after collecting them from the principal posts, could, it was suggested, be done either at the Disciplinary Barracks or under contract with a firm specializing in the remodeling of old shoes, which would result in a large saving to the Government in the cost of shoes.

In reply to the foregoing this office has been advised that after careful consideration it has been decided that it is to the best interest of the service to continue the clothing allowance system for enlisted men instead of the Government retaining ownership of all clothing issued to enlisted men.

Aviators' clothing.—Under the provisions of paragraph 20, Special Orders No. 274, War Department, November 24, 1915, a board of officers was appointed to meet at Fort Sam Houston, Tex., to consider the question of adopting clothing suitable for aviation purposes. This department, upon the recommendation of said board, procured from abroad, through the military attaché at London, England, articles of equipment suitable for the purpose.

Upon receipt of these samples they were forwarded to the board of officers referred to for consideration. No definite result has, however, as yet been communicated to this office.

On the 27th of May last the Chief Signal Officer requested a decision as to whether aviators' clothing should be paid for from

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appropriations of the Signal Corps or from those for the Quartermaster Corps.

Under date of June 7, 1916, the Secretary of War approved the recommendation of this office that the clothing required by officers should be paid for by the officers themselves, and that such as may be required by the enlisted men be furnished by the Quartermaster Corps and issued on memoradum receipt.

Issue of civilian clothing to prisoners upon release from confinement.—Under the provisions of paragraph 1170, Army Regulations as changed by C. A. R. No. 27, 1915, each general prisoner upon release from confinement is furnished by the Quartermaster Corps with a suit of citizens' outer clothing at a cost of not to exceed $10.

Experiments conducted at the United States Disciplinary Barracks, Fort Leavenworth, Kans., demonstrated that the clothing required for issue to discharged prisoners could be economically manufactured by prison labor and the savings would cover the cost also of an overcoat.

Steps were taken during the past year to install a tailor shop at the Pacific Branch, United States Disciplinary Barracks, Alcatraz Island, Cal., and the Atlantic Branch, Fort Jay, N. Y. A shoe-repair shop has also been established at these barracks.

These added facilities will not only enable the Quartermaster Corps to manufacture the several suits required for issue to discharged prisoners, but will provide the means by which garments can be renovated and repaired for issue to general prisoners in confinement. Experience has shown that obsolete shoes and other articles can be altered and utilized in this manner with considerable economy to the Government.

Leather leggings.—A supply of leather leggings has been procured and issued to the mounted organizations for whom they are intended. From reports received it appears that they do not meet with favor, partly due to unsuitable material of which made. No action to discontinue their procurement and issue has thus far been taken, as the department considers that a further and more extensive trial will be necessary to arrive at a thorough and correct understanding.

Suggestions have been made that in case it should be decided to abolish the leather leggings it would be preferable to adopt for the mounted troops a suitable legging made of canvas and to reinforce them with leather.

Canvas leggings.—Reports have been received that the present canvas legging is not suitable for the requirements of the service. It is pointed out that a return to the pattern issued prior to the Spanish-American War would be preferable. The pattern referred to was provided with a leather strap to go beneath the shank of the shoe, thereby keeping the legging in proper place and extending the material sufficiently over the instep to prevent sand and other substances from entering the shoe.

Ponchos and slickers.—Experiments have continued during the past year in the effort to develop a satisfactory poncho and slicker for the service, it being found that the waterproof sheeting heretofore used in manufacturing these articles was not suitable for the purpose.

As to slickers, so far experiments have shown that a double texture material with a rubber interlining has given the most satisfaction.

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Recently a fabric known as "aeroplane cloth" was brought to the attention of this office, and preliminary experiments and tests indicated that this fabric would prove especially serviceable for ponchos. Contracts have been awarded for a quantity of this material, and it will be given a thorough trial.

In general it can be stated that complaints with reference to ponchos and slickers have been less frequent during the past year, and it is hoped that within the near future a perfectly satisfactory article will be evolved.

Changes in specifications for clothing and equipage.—The following is a statement of the various changes that were made in the specifications for clothing, equipage, and materials during the fiscal year ending June 30, 1916, with the reasons therefor:

No.	Articles.	Reasons for change.
1231	Collar ornaments	Adoption of ornaments for Disciplinary Guards.
1232	Cap ornaments	Adoption of ornaments for Disciplinary Guards.
1233	Leather leggings	Adoption of, for mounted organizations.
1234	Ambulance guidon staffs	Readopted for ambulances.
1235	Tent poles and pins	New hexagonal pole for pyramidal tents in lieu of old pole and tripod; new specifications for ward tents and consolidation of specifications for poles and pins.
1236	Tentage	Adoption of wall tent, large (formerly hospital, regulation); adoption of ward tent; wall tent, small (formerly wall tent, tropical) in lieu of pyramidal tent, small; canvas cover for folded ward tent as prescribed in G. O. 39, W. D., 1915; and consolidation of all tentage specifications.
1238	Silken colors, guidons, and standards	Adoption of guidons for ambulance companies, field hospital companies, aero squadron, and telegraph companies, Signal Corps.
1239	Field desks for companies and regimental headquarters.	New filing arrangement.
1240	Woolens	Provide for mixture of cotton in 30-ounce melton and shirting flannel; substitution of 16-ounce for 14 and 17 ounce meltons.
1241	Bunting flags, colors, standards, pennants, and guidons.	Adoption of guidons for ambulance and field hospital companies, aero squadron, and telegraph companies, Signal Corps.
1242	Containers for identification certificates	New.

Guidons for machine-gun troops.—Requisitions for guidons for machine-gun troops having been made upon this department, The Adjutant General, by order of the Secretary of War, has advised this office that the same are not required by such troops.

The officers in charge of the several issuing depots have been advised accordingly.

Band instruments.—The change in musical instruments furnished to the bands of the Army and the militia by the Quartermaster Corps from high to what is known as the low or international pitch has received the constant attention of this office in so far as the appropriations available for that purpose would permit. About one-third of the bands have been supplied with new instruments, or, whenever practicable, alterations in the instruments on hand by means of slides have been made, thereby perfecting the changes in the most economical manner.

Mosquito bars for troops in Canal Zone.—The attention of this office having been called to the necessity of supplying the troops stationed in the Canal Zone with mosquito bars of a finer mesh, in view of the fact that those of regulation pattern did not afford sufficient protection against the sand flies so prevalent in that part of the country, the Department Quartermaster of the Eastern Department on June

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28 last was authorized to purchase the necessary bars, to be of a quality that may be found most suitable and satisfactory.

A report has been received from the officer referred to, from which it appears that 5,610 bars have been purchased at the several posts requiring them, at a total cost of $10,889.68.

Claims, act of March 3, 1885.—There were received at this office during the fiscal year ending June 30, 1916, 144 claims for personal property destroyed or lost by officers and enlisted men while in the service of the United States. The act of Congress approved March 3, 1885, authorizes settlement of claims of this character by proper accounting officers of the Treasury Department.

The act contains a provision that the liability of the Government shall be limited to such articles as the Secretary of War, in his discretion, shall decide to be reasonable, useful, necessary and proper for such officer or soldier to have in his possession while in quarters, engaged in the public service, or in the line of duty.

The claims received were carefully considered in this office and submitted to the Secretary of War for transmittal to the Auditor for the War Department, the total amount recommended for settlement amounting to $1,713.23.

Claims on account of the Texas flood.—A severe tropical storm or hurricane reached the coast of Texas at Galveston on August 16, 1915. The storm was of exceptional violence and duration, and the wind and the rain and the floods from the great tide and backwaters caused enormous damage at the Army posts, camps, and stations at and near Galveston and Texas City.

In view of the extraordinary situation the Secretary of War approved recommendations for application to Congress for special legislation for the relief of those connected with the Army who suffered loss of private property in the storm, including civilian employees, and also to provide reimbursement for loss of articles personal to the use of members of families and dependents of officers, enlisted men, and civilian employees and for military organizations.

Up to June 30, 1916, there have been received applications from 8,321 claimants for amounts aggregating over $655,000. As revised by several boards of officers, where there has been such review of the claims submitted, the amount involved is reduced to $515,449.20.

Of this latter amount $414,306.29 is for articles that were personal to the use of officers and enlisted men; $55,841.79 for articles used by civilian employees connected with the Army and members of families and dependents of officers, enlisted men, and civilian employees; and $45,301.17 for reimbursement of articles lost by military organizations.

The matter was reported to Congress by letters addressed by the Secretary of War to the Speaker of the House of Representatives under dates of October 30 1915, and January 11, 1916. These communications, with inclosures, were published in Document No. 582, House of Representatives, Sixty-fourth Congress, first session.

The examination of these claims is proceeding, but their transmittal to the Auditor for the War Department must of necessity be deferred until Congress shall have had opportunity to consider the special legislation recommended by the Secretary of War.

The claims can not be adjudicated under the act of Congress approved March 3, 1885.

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Clothing damaged by Galveston, Tex., flood.—The large quantities of overcoats, blankets, sweaters, and other articles of clothing damaged by salt water incident to the hurricane and flood at Galveston, Tex., in August last, which it was believed could be renovated and rendered serviceable for issue, were ordered to the depot at Philadelphia, Pa., for that purpose. The expenditure connected with such renovation is reported to have amounted to $12,606.97.

Many of the articles were discolored with a brown color which it was found impossible to remove, but the discoloration was not sufficiently noticeable to prevent the clothing from being issued to troops at the several disciplinary barracks, and it has therefore been set aside accordingly. The remainder of the renovated property has been placed in stock for issue.

Manufacture of mattresses for prisoners at the Atlantic United States Disciplinary Barracks.—On the 21st of March last The Adjutant General informed this office of the approval of the request of the commandant United States Disciplinary Barracks at Governors Island, New York Harbor, that the old and present policy of furnishing the prisoners with straw mattresses with no pillows or sheets be discontinued, and that they be supplied with cotton mattresses, pillows, etc.

A requisition for the required articles having been submitted, and it having been decided to make the mattresses at the United States Disciplinary Barracks at Fort Leavenworth, Kans., thus giving employment to prisoners, an order to manufacture the number needed (400) was given after ascertaining that the necessary picking and filler machine and materials could be procured as cheaply at Fort Leavenworth as elsewhere. Purchase has been authorized at a cost of $1,404.25.

Relief of sufferers from fire at Paris, Tex.—Congress, by act approved April 11, 1916, authorized the Secretary of War to supply for temporary use, under such rules and regulations as he may prescribe, a sufficient number of tents to afford shelter for the sufferers from the conflagration in Paris, Tex., and who may be in need of the same, and to furnish such cots, blankets, and supplies as, in his judgment, would be necessary to give relief to such persons as were rendered destitute by said conflagration.

The act of Congress quoted made no provision permitting the use of any public funds for the purpose referred to, and upon the receipt of information to the effect that governmental aid would not be required, no further action regarding the matter was taken by this office.

Issue of tents to flood sufferers in the Mississippi Valley.—There were issued in February last, from the St. Louis, Mo., depot, to sufferers from the overflow of the Mississippi River, 51 conical wall tents, 2 pyramidal tents, large, 5 wall tents, small, and 17 wall tents, large, all complete with poles and pins, valued at $2,875.10. The cost of shipping the same from St. Louis to Arnaudville, La., was $199.53, and report has been received that all this tentage would be returned to the St. Louis depot.

Loan of cots for use of the United Veterans' reunion at Birmingham, Ala.—There were loaned from the depot at Philadelphia, Pa., to the committee having charge of the United Veterans' Reunion held at Birmingham, Ala., in May last, under Senate joint resolution No. 76, by authority of the Secretary of War, for use of the veterans attend-

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ing said reunion, 5,000 cots, satisfactory bond for the value of the property to insure its safe return having been given.

Loan of tents and other property to sanitary organizations of the American National Red Cross.—There were loaned for use of the National Service School, upon receipt of satisfactory bond, the following Quartermaster Corps supplies, etc.:

260 each cots, mattresses, pillows, and mosquito bars.
520 pillowcases.
1,040 bed sheets.
150 galvanized-iron buckets.
2 field desks.
11 hospital tents.
65 pyramidal tents.
41 tent flies.

all complete with tripods, poles, and pins.

The property has been returned to the custody of the department.

Purchase of supplies under annual contracts.—Under the annual contract system advertisements were issued and contracts awarded by the Quartermaster General's office, for delivery of various classes of supplies, as required during the fiscal year, at the several depots of the Quartermaster Corps. Under these advertisements 674 bids were submitted and 319 contracts awarded.

These contracts covered supplies and services of the classes indicated in the following statement, which also shows the total amount of purchases under each class, viz:

Stationery and office supplies, wrapping and toilet paper, school books, etc.	$178,047.70
Hardware and tools	223,731.12
Rope and twine	66,876.38
Toilet articles, soap, and cleaning materials	253,384.75
Paints, acids, and glass	71,668.17
Canvas, duck	10,920.71
Iron, steel, copper, etc	5,530.23
Leather and harness hardware	167,999.00
Band instruments and parts	18,565.99
Clothing, equipage, and materials	2,430,471.55
Manufacture of clothing	327,635.57
Packing and waste	14,304.55
Office furniture	23,813.57
Fire, garden, and steam hose	24,414.70
Tableware and kitchen utensils	27,934.97
Total	3,845,298.96

Under these annual contracts orders are placed with the contractor direct by the depot quartermaster requiring the supplies, from time to time during the fiscal year, which simplifies to a great extent the procurement of supplies.

Some difficulty was experienced in a few cases in obtaining satisfactory and prompt deliveries of certain supplies, due to the unusual market conditions existing and the shortage of materials entering into their manufacture.

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TRANSPORTATION.

ARMY TRANSPORT SERVICE.

Owned service.—This service consists of 16 ocean-going vessels, owned and operated as required for the transportation of troops,

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animals, and supplies for the Army. These vessels were engaged in service or stationed at the close of the fiscal year as follows:

Name.	Class.	Location.
PACIFIC FLEET.		
Burnside	Cableship	Cable service, Tacoma, Wash.
Crook	Troop ship	Undergoing repairs, San Francisco, Cal.
Dix	Freight and animal ship	Trans-Pacific service.
Logan	Troop ship	Out of commission, San Francisco, Cal.
Sheridan	do	Trans-Pacific service.
Sherman	do	Do.
Thomas	do	Do.
Slocum	Tug	In service, San Francisco, Cal.
ATLANTIC FLEET.		
Buford	Troop ship	At Manila, P. I.
Kilpatrick	do	New York and Canal Zone service.
McClellan	Refrigerator ship	Out of commission, Newport News, Va.
Meade	Troop ship	Do.
Sumner	do	At Vera Cruz, Mexico.
PHILIPPINE FLEET.		
Liscum	Troop ship	Interisland service.
Merritt	do	Do.
Warren	do	Do.

Movement of transports.—The transports have been operated without interruption upon a monthly schedule between San Francisco, Cal., and Manila, P. I. The *Logan* was dispatched as an extra transport, leaving San Francisco January 7, 1916, and after taking aboard the Twenty-seventh Infantry at Balboa, Canal Zone, arrived at Manila March 5, 1916. Besides other cargo this transport carried 778 tons of ordnance material for fortification work in the Philippines. This ship returned to San Francisco April 20, 1916, and soon after made ready for interchanging troops in Alaska, but the movement was suspended, due to the mobilization of troops on the Mexican border.

The *Buford* was in service during the greater part of the year, leaving Galveston, Tex., September 29, 1915, with the Twenty-seventh Infantry aboard for Manila, P. I., but the Panama Canal being closed, the troops were disembarked and the ship utilized for the return of the Twenty-third Infantry from Jacksonville, Fla., to Galveston, thence going to New York to carry Company A, Signal Corps, with its complement of animals and equipment to the Canal Zone. After completion of this duty, the *Buford* was loaded at Newport News and New York with turret material for the Philippines, where the vessel arrived May 28, 1916.

The *Kilpatrick* left Galveston, Tex., September 20, 1915, with the Twenty-third Infantry, which was disembarked at Jacksonville, Fla., for duty at the National Matches. Commencing in February, 1916, this transport made three voyages to the Canal Zone, taking on the first trip the First Squadron, Twelfth Cavalry; on the second trip Batteries E and F, Fourth Field Artillery; and on the third trip the Fifth Band and five companies Coast Artillery Corps. After completion of this special service, the *Kilpatrick* was continued in operation upon a regular monthly schedule between Christobal, Canal Zone, and New York, the expense connected therewith being divided in accordance with the terms of an agreement between the Panama Canal and the Quartermaster Corps, mutually advantageous to all concerned.

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The *Sumner* was hurriedly made ready for sea at the request of the State Department and left Newport News June 23, 1916, for Vera Cruz, Mexico, where 606 refugees were taken aboard for disembarkation at Port Tampa, Fla., and New Orleans, La. At the latter port 173 Porto Rican refugees from Progreso, Mexico, were embarked after the close of the fiscal year and landed at Ponce, P. R., after which the transport was again placed out of commission at Newport News, Va.

Philippine cargo.—Owing to the shortage of ocean tonnage upon the Pacific available for the movement of products of the Philippine Islands, it was decided by the Secretary of War to utilize the cargo space upon returning transports for the carrying of such products of the Philippine Islands as could not be taken by commercial carriers. By agreement the Philippine government will reimburse the War Department for all additional expenditures incident to the handling of such cargo upon the transports and will deposit the remainder of the freight charges collected from shippers to the credit of the United States Government.

Special duty for "Crook."—Under agreement with the Interior Department, steps were taken to prepare the *Crook* for service in connection with the Alaskan Engineering Commission between the United States and Alaskan ports. The ship will be operated by the Quartermaster Corps, but the entire expense of operation will be borne by the Alaskan Engineering Commission. The *Crook* left Seattle, Wash., for the first voyage on August 5, 1916.

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Earnings and expenditures.—The earnings of the transports during the year for the above service, based on the lowest rates offered for similar service by commercial lines, have been:

For passengers	$2,094,336.84
For cargo	1,583,966.33
Total	3,678,303.17
At public commercial rates the earnings would be:	
For passengers	2,103,816.84
For cargo	1,584,578.17
Total	3,688,395.01

The foregoing does not take into consideration the value of transporting families of officers, soldiers, and employees, or of the other persons not entitled to transportation at the expense of an appropriation of the United States or of the Philippine government.

The value of such gratuitous service during the year, however, aggregated $568,612.97.

The expenditures for the operation and maintenance of the transports during the year were as follows:

	In commission.	Out of commission.	Total.
Wages of officers and crew	$671,683.81	$33,418.69	$705,102.50
Repairs	165,608.24	28,798.65	194,406.89
Fuel	418,556.37	3,163.09	421,719.46
Deck, engine, and steward's supplies	562,009.56	9,276.48	571,286.04
Miscellaneous	158,464.09	4,401.37	162,865.46
Total	1,976,322.07	79,058.28	2,055,380.35

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Shore expenses, including proportionate part of salaries of officers, commutation of officers' quarters, wages of employees, rent of offices, warehouses, wharves, etc., were as follows:

San Francisco	$53,349.52
Seattle and Tacoma	8,220.51
Galveston and Newport News	30,678.51
Honolulu	5,384.25
Nagasaki (estimated)	9,983.11
New York	1,781.32
Manila (estimated)	21,023.90
Total for this purpose	130,421.12
Grand total	2,185,801.47

Included in these expenditures is the cost of operating and maintaining the *Burnside* while engaged in cable work for the Signal Corps of the Army, the total of which was $106,004.83.

Inasmuch as the service rendered by the *Burnside* was not performed in the interest of the Quartermaster Corps, the expenditure in connection therewith should be deducted, leaving the net cost to the Government on account of the transportation of troops, supplies, etc., and the maintenance of all transports, both active and inactive, during the year $2,079,796.64.

RECAPITULATION.

	Lowest commercial rate.	Public commercial rate.
Earnings of the transports during the year	$3,678,303.17	$3,688,395.01
Expense of operation and maintenance during the same period	2,079,796.64	2,079,796.64
Savings to the Government by using transports over same service by commercial vessels	1,598,506.53	1,608,598.37

* * * * * * *

LAND TRANSPORTATION.

Freight and passengers transported.—During the fiscal year there were transported by the Quartermaster Corps in the United States (exclusive of transportation on transports and other owned vessels) 148,658 passengers, 37,437 animals, 295,340 tons of freight, $4,393,545.74 in funds, and 246 remains of officers, enlisted men, and civilians.

Excluding from consideration the transportation of the militia to the border, this statement indicates an increase of 4,665 passengers over those transported during the fiscal year 1915, and an increase of 27,262 animals and 14,964 tons of freight. Quartermaster Corps supplies show an increase of 6,695 tons over shipments during the fiscal year 1915; ordnance stores, a decrease of 274 tons; medical stores, an increase of 1,247 tons; engineer stores, a decrease of 2,395 tons; and signal stores, a decrease of 104 tons. Miscellaneous stores show an increase of 9,795 tons; the latter consists principally of supplies shipped for other departments of the Government, and the charges for this transportation are paid from appropriations of the departments concerned.

The increase in number of passengers transported as compared with the fiscal year 1915 is explained by the movements of troops to

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the Mexican border in 1916, several additional regiments having been sent to the border during this year. The increase in the number of animals transported is due partly to the movement of regiments to the border with their animals, and partly to the large purchases of animals in 1916 as compared with 1915, 14,430 more horses and mules having been purchased in 1916. The increase in the number of tons of freight transported is due, in part, to large shipments of quartermaster stores to the border, and, in part, to a greater amount of stores transported for other departments of the Government.

Included in the above figures are 754 passengers, 43,838 ships' tons of merchandise, 959,000 board feet of lumber, and 94 animals, forwarded in deep-sea commercial vessels, at a cost of $354,847.30, as shown below:

Shipments in deep-sea commercial vessels.

	Passengers.	General merchandise (tons).	Lumber (feet b. m.).	Animals.	Cost.
American vessels:					
To Alaska	147	4,112	347,000	4	$75,656.17
To Canal Zone	451	3,556	.....	62	71,107.68
From Canal Zone	120	130	.....	13	5,992.91
To Hawaii	.....	25,178	612,000	.....	88,487.83
From Hawaii	29	84	.....	2	4,005.90
To Philippines	.....	5,183	.....	.....	32,776.50
To Porto Rico	7	1,106	.....	.....	12,059.39
To other ports	.....	3	.....	.....	282.75
Total American vessels	754	39,352	959,000	81	290,369.13
Foreign vessels:					
To Philippines	.....	4,485	.....	.....	64,396.07
To other ports	.....	1	.....	13	82.10
Total foreign vessels	.....	4,486	.....	13	64,478.17
Grand total	754	43,838	959,000	94	354,847.30

Transportation furnished for other Government departments and bureaus.—Under the act of July 5, 1885 (23 Stat., 111), the Quartermaster Corps is required to receive, transport, and be responsible for all property turned over to it by the officers or agents of any other Government department or bureau, the amount paid for such transportation being refunded by the department or bureau to which such property pertains.

During the fiscal year 1916, the Quartermaster Corps issued 189 transportation requests and 1,689 bills of lading, covering transportation of persons or property for other departments or bureaus of the Government.

The accounts covering this transportation are prepared by officers of the Quartermaster Corps and forwarded to the department or bureau concerned for payment; the number of vouchers required to state these bills of lading and transportation requests was 1,271, and the estimated cost of the clerical work in the issuance of these transportation requests and bills of lading, and the preparation and handling of the vouchers connected therewith, is $1,047.45, for which the Quartermaster Corps received no reimbursement.

Freight contracts from New York City.—Contract was entered into with the American-Hawaiian Steamship Co. for transportation of all

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classes of supplies from New York City to San Francisco at a rate of 70 cents per 100 pounds and from New York City to Honolulu at a rate of 80 cents per 100 pounds. These contracts were subject to cancellation by either party, on due notice, and on account of the closing of the Panama Canal it became necessary on October 12, 1915, to cancel the contracts. Shipments were forwarded by the Mallory and Morgan Line steamships (via Galveston and rail) from October 15, 1915, to May 31, 1915, at an agreed rate of 90 cents per 100 pounds. On the latter date both companies canceled their agreements and shipments thereafter were forwarded over various lines at regular tariff rates, less land-grant deductions.

Bids were invited for transportation from New York City to San Francisco, Honolulu, and Manila for the fiscal year 1917, but no bids were submitted carrying a lower rate than was available under regular tariffs and all bids were rejected and shipments for the fiscal year 1917 will be forwarded by such routes as desired at open rates.

Cooperation between the transportation companies and the Quartermaster Corps.—Especial attention was devoted during the fiscal year 1916 to the establishment of a closer cooperation between the Quartermaster Corps and the various transportation interests, with a view to coordination in the movements of troops and supplies for the Army. The officer in charge of the transportation division, Office of the Quartermaster General, appeared before several of the transportation associations and outlined a plan of mutual cooperation which would be of benefit to both the carriers and the Government in case any necessity arose involving the transportation of large numbers of troops, the plan outlined being practically that which has since been placed in effect.

Under date of October 16, 1915, a letter was prepared in the office of the Quartermaster General recommending that the Secretary of War communicate with the American Railway Association (which association is composed of the presidents, general managers, and other chief operating officials of the American railways) and suggest the establishment within that association of a committee on military transportation to whom the department could look for any information that might be desired as to the railroads of the United States, and with a further view to coordination and cooperation between the railroads and the War Department in the transportation of troops and supplies of the United States. On October 26, 1915, a letter of the nature indicated was sent by the Secretary of War to the American Railway Association, and after some further correspondence a "Special committee on cooperation with the military authorities" was appointed by that association. This committee was, and is, composed of the following gentlemen: Fairfax Harrison (chairman), president Southern Railway; R. M. Aishton, president Chicago & North Western Railway; A. W. Thompson, vice president Baltimore & Ohio Railroad; W. G. Besler, president Central Railroad of New Jersey. Conferences were held with this committee, and a general plan of cooperation outlined to be placed in effect at the time of any public emergency.

Immediately after the call for mobilization of the State troops was issued, this committee met in the office of the Quartermaster General with Lieut. Col. Chauncey B. Baker, representing that office,

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and the plans previously determined were at once placed in effect. Arrangements were made for placing a competent railroad official at each department headquarters, at each mobilization camp, and in the office of the Quartermaster General. These representatives were to act as advisors to the officers of the Quartermaster Corps at these various points on any matters affecting rail transportation. They were all men of the highest reputation in the railroad world, and did not represent any particular railroad but were representatives of all lines interested.

Directly after the announcement of the mobilization this committee of the American Railway Association also called upon representatives of the various railroads of the country to meet in Washington for the purpose of extending every possible assistance among the railroads themselves. The object of this meeting was to make all of the railroad equipment, motive power, and personnel, of the country available to effect this movement in the most expeditious manner possible.

The main object of the special committee on cooperation with the military authorities was to assist the War Department in the transportation of troops and supplies, and the committee acted only on instructions from the War Department, except in matters directly affecting the operation of trains.

When it was definitely known that an organization was to move, the camp quartermaster consulted with the American Railroad Association representative at his camp and advised him as to the strength of the organization, and it was the duty of the American Railway Association representative to see that all railroad equipment, other than tourist cars, was promptly assembled in time for the movement. Tourist cars were ordered direct from the office of the Quartermaster General, and the camp quartermaster was immediately advised by wire whether tourist cars could be furnished from point of origin; if not, the American Railway Association representative was so advised, and it was his duty to see that coaches were secured for the movement.

In 1912 the Quartermaster General's Office took up with the American Railway Master Car Builders' Association the question of placing placards, in time of war or threatened war, on all carload shipments of Government property. As a result of a large amount of correspondence, a plan was formulated which was accepted by all the railroads in the country and a series of placards adopted.

Through the agency of the American Railway Association all railway officials and employees were notified that cars so placarded must be given right of way from point of origin to point of destination. Such cars are placed in the fastest moving freight trains and kept constantly moving to point of destination, where they are immediately delivered and at once identified, shifted into position, discharged, and released without the necessity of waiting for the formal bills of lading and official papers of the railways and the Government; the placards themselves serving to fully identify all shipments. All placards bear the legend "United States Army" at the head, followed by the department to which supplies belong, the car initial, car number, point of shipment, contents, consignee, destination, routing, date shipped, and consignor. Cars bearing these cards are never sidetracked nor shifted into yards except to be placed in

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through freight trains. Should a car become damaged through any cause, it is given preference and precedence for any repairs, and if repairs require an extended period, contents are loaded into another car and the movement continued.

As a result of this understanding between the railroads and the Quartermaster General's Office, shipments of freight are being made with remarkable expedition. Many instances are cited where freight shipments have been sent through from Washington and vicinity to the Texas border in four days, and from New York and vicinity in five days or less; freight from Philadelphia, Pa., has reached San Antonio, Tex., in 79 hours, from the Lakes to the border shipments have been made in an elapsed time of a little more than 48 hours.

The hearty cooperation of the railroads in making these shipments has been rendered without any hesitation whatever, with all the energy possible, and without additional charge to the Government.

It is believed that this simple device, with the fullest cooperation of the railroads, has removed one of the principal sources of criticism applicable to the period of mobilization in 1898.

Where special, urgent shipments have been made they have been followed through by wire to destination and most satisfactory results have been obtained in every instance.

As a specific example showing how the cooperation of the railroad companies assisted the Army, there may be cited the case of the first motor truck company purchased for the expeditionary forces in Mexico.

Bids were invited for a number of trucks, and award made about 5 o'clock the evening of March 14. Twenty-seven trucks were purchased under this advertisement in Wisconsin. These trucks were inspected, the personnel to operate them employed, the trucks were loaded in 14 cars, and tourist car furnished for the personnel, and the train left at 3.11 a. m. March 16. It arrived at Columbus, N. Mex., 1,591 miles away, shortly after noon on the 18th, the trucks were unloaded from the cars, loaded with supplies, and sent across the border, reaching Gen. Pershing's command with adequate supplies of food before he had exhausted the supplies taken with him from Columbus.

In a little more than four days after orders were placed with the manufacturers, these trucks had gone across the border at Columbus, 1,600 miles away from the factory, loaded with supplies.

The general plan of cooperation also provided for coordinating the duties of the Pullman Co. in furnishing sleeping car equipment, and under this plan when it became necessary to mobilize the Organized Militia the supply and distribution of tourist sleeping cars was handled directly under the instructions of the Quartermaster General of the Army. In order to centralize the furnishing of tourist sleepers at the point most convenient to the Government, to utilize the available supply of these cars to the best advantage, and to keep them constantly in service, the Pullman Co. changed the supervision of the supply and movement of these cars from the headquarters of the company, at Chicago, to Washington, where they stationed Mr. C. W. Henry, assistant to superintendent of car service, with a competent force. Mr. Henry was in immediate touch with the office of the Quartermaster General, and on receipt of request from camp quartermasters for tourist cars, he was advised of the needs and at once took

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steps to supply the cars if they were available at any point. Reports were received by him daily from all parts of the United States showing the number of tourist cars that were available in all sections of the country and in cases when, on account of the necessity for immediate departure, it was impossible to furnish cars from the starting point, this branch of the Pullman Co. used every effort to furnish the cars en route, immediately starting such cars as could be secured over the route to be taken by the troops, so that they could be transferred to tourist sleeping cars at the first possible opportunity. During the first two weeks of the concentration this force was on duty until nearly midnight every day, including Sundays, and deserves great credit for the excellent assistance rendered the Government.

The great value of the plans made for cooperation and coordination between the railroads and the War Department was fully demonstrated in the mobilization and concentration of the Organized Militia. Every assistance possible was rendered the Government, not only by the American Railway Association and the Pullman Co. but by the various passenger associations, and by the officials and employees of all the railroads concerned, from the presidents of the companies down to the minor employees. In addition to the representative of the American Railway Association, nearly all the important Southwestern railway lines had representatives in Washington during the entire movement, and these representatives kept in close touch with the transportation over their respective lines, and were available for consultation at any time, if desired by the department. The cooperation of the American Railway Association representatives, with their expert knowledge of transportation conditions, has proved of great value to the department, and quartermasters have been relieved of a great deal of trouble and annoyance heretofore experienced in the mobilization of large bodies of troops.

It is believed that the careful plan of cooperation adopted and the assistance of the transportation interests in this plan has demonstrated that the problem of rail congestion, which was the bugaboo of the mobilization of troops in 1898, has been entirely eliminated.

The arrangements entered into with railway lines in eastern and western territory, as referred to in the Annual Report of the Quartermaster General for 1915, pages 50 and 51, were continued during the fiscal year 1916, and resulted in a saving of approximately $40,000 on passenger traffic. Negotiations are now under way with lines in New England and Southeastern territory on a similar basis with every prospect of a successful conclusion; this arrangement will then cover the entire United States. Briefly, it provides for a deduction of 5 per cent from the usual fare available to the Government and for an equitable distribution of the traffic between all lines interested, it simplifies the settlement of accounts, and insures the cooperation of the various carriers.

Transportation of Regular Army organizations to the Mexican border.—During the latter half of the fiscal year 1916 conditions on the Mexican border were such that it became necessary to augment the troops stationed along that frontier, and the following movements of Regular Army organizations were ordered on the dates indicated.

March 11, 1916, First, Eleventh, and 2 squadrons Twelfth Cavalry.

March 20, Fifth Cavalry.

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May 9, Third, Twenty-first, Thirtieth, and 2 battalions, Fourteenth Infantry, First battalion Third Field Artillery, and 21 companies Coast Artillery.

June 11, First battalion Engineers.

The transportation of these organizations was accomplished in an excellent manner, in exceptionally good time, and without any accidents of any nature.

Mobilization of the Organized Militia and National Guard.—On May 9 the President called into the service of the United States the organizations of the Organized Militia and the National Guard of the States of Arizona, New Mexico, and Texas. These organizations were not mobilized at their State mobilization camps, but directed to proceed from their home rendezvous direct to the border.

On June 18, 1916, the Organized Militia and the National Guard of all the other States of the Union were called into the service of the United States and directed to assemble at their State mobilization camps. The movement from the company rendezvous to the State mobilization camp was under the control of the State authorities, and from these camps to the station designated on the border was under direction of the War Department.

Immediately on receipt of the order for this mobilization, routing schedules prepared in the office of the Quartermaster General were furnished to the quartermaster at each of the four department headquarters; these schedules indicated the routing to be used by each organization from the State mobilization camp to the Mexican border, 288 routes being shown, and were arranged with a view to an expeditious movement, employing all available lines, as far as practicable, so that if it had become necessary to transport all the militia at one time the carriers could have performed the service without congestion and without delay.

A Handbook on Transportation by Rail, issued by the Quartermaster General of the Army, was sent to each mobilization camp immediately after orders were issued for the mobilization of the State troops.

This handbook, among other matters, consolidates the information showing the manner and extent to which standard sleepers, tourist sleepers, and coaches shall be furnished under existing regulations for troops traveling; it provides for the methods to be used to secure an adequate supply of drinking water for the troops, and contains full instructions as to the installation of Army field ranges in baggage or box cars, so that hot coffee and hot meals may be furnished en route. It also exhibits the details of assembling and loading of equipment, and the entraining and detraining of the men and animals.

The militia troops began leaving their mobilization camps for the Mexican border about midnight June 26, the first organization to leave its camp for the border being Battery B of the New Jersey Field Artillery, which departed from Sea Girt, N. J., at 11.30 p. m., June 26, but was closely followed by the Ninth Massachusetts Infantry, which left its camp at Framingham at 12.28 a. m. June 27. Other organizations from Massachusetts and New Jersey also left the State mobilization camp for the border on June 27, as well as organizations from Connecticut, New York, Oregon, Utah, and Vermont. On July 1 there were en route to the border from various sections of the United States 122 troop trains, carrying over 2,000

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freight, passenger, and baggage cars, with a total strength of 36,042 men. On July 4 101 troop trains were en route to the border and 52,681 militia troops (not including Arizona, New Mexico, and Texas were either at the border or en route thereto.

From the beginning of the movement up to July 31, 1916, there have been 111,919 militia troops transported to the border.

Some idea of the task imposed upon the railroads of the country by the transportation of the National Guard may be had when it is considered that 350 trains were necessary to carry the first 100,000 of the National Guard and that these trains, if combined, would have made a train nearly 90 miles long. Over 3,000 passenger cars, including standard Pullman and tourists and coaches, were provided for the troops, and in addition about 400 baggage cars, most of which were equipped as kitchen cars for serving hot meals en route, 1,300 box cars, 2,000 stock cars, and 800 flat cars were used in transporting the equipment and materiel of the troops. An enormous number of locomotives were required in these movements, as will be realized when it is remembered that at each division point a different locomotive, with crew, was attached to each train section, and the number of division points at which it was necessary to change locomotives varied from three, in the case of the Louisiana troops, to 24, in the case of the Connecticut troops. There were employed in the movement of the first 100,000 of these troops approximately 4,900 engines and crews, not including switching engines, yard engines, and their crews.

The call upon the railroads for the transportation of the militia came at a time when their passenger traffic was at its height. In the fortnight which includes the Fourth of July the greatest density of travel of the entire year always occurs in the Eastern States.

Instructions were issued by all railroads concerned that the movements of troop trains were to be given preference over other travel, and it is believed that this was done in all cases. Many of the western roads being single-track lines, it was, in some cases, necessary for the troop train to take the siding in order that a train proceeding in the opposite direction could pass, but this action is sometimes necessary on these roads with even the fastest limited trains. The following wire received from one of the southwestern railroads is characteristic:

> Instructions have been issued to all concerned that all military trains are to be given right of way. Sunshine Limited was sidetracked last night for the first time in its history. We are doing everything possible to facilitate the handling of this business.

It is, of course, impossible to compare the concentration of the United States Militia on the Mexican border with the mobilization in Europe in the summer of 1914. In Europe all civil traffic was stopped and the entire railroad system given over to the military movement. The distances involved in this movement of the Organized Militia are very much greater than those in Europe, the longest run in the German Empire, from one frontier to the other, being about 700 miles and those in France much less. The distances traveled by the militia organizations of the United States vary from 608 miles, in the case of the Louisiana troops, to 2,916 miles in the case of the Connecticut troops. The majority of these troops came from North and Northeastern States and were carried over 2,000

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miles; in most cases in remarkably fast time. As an example, the Seventh New York Infantry, about 1,400 men, with equipment, ammunition, and baggage, left New York at 2 p. m. June 27, and arrived at San Antonio, Tex., 8.30 p. m. June 30, a distance of 2,087 miles. Similar runs on time almost as fast were made from other points.

When it is considered that these trains were, as a rule, heavy trains of from 17 to 22 cars each, and were composed of freight, passenger, and baggage equipment (which was necessary in order to enable each unit to proceed to its destination intact with all its equipment and impedimenta), it will be seen that the movement was made with exceptional rapidity.

To have effected the entire movement of all the troops moving in tourist sleepers would have required the use of approximately 3,000 cars; in other words, approximately five times as many as there are in existence. The Pullman Co., by utilizing some standard cars, made available for the movement of these troops 623 tourist cars. Tourist equipment was furnished troops from the beginning of the movement whenever it was possible to do so.

Particular attention is invited to the fact that the effort to furnish tourist cars for organizations leaving in coaches did not cease until the organizations had actually arrived at destination, and that wherever tourists could be secured en route they were placed in the train and the men transferred from coaches to these tourists up to the number that could be suitably berthed. Taking as an example some of the New York organizations: Headquarters, band, and Battery A, First Field Artillery, left Yonkers, N. Y., for Brownsville, Tex., on July 3, requiring four tourists. There was only one available at starting point, but the organization was furnished one at Poughkeepsie, N. Y., one at Buffalo, N. Y., and one at Sapulpa, Okla. The Seventy-fourth New York Infantry, leaving Buffalo, N. Y., on July 5, required 25 tourists, but none were available at Buffalo, Chicago, or Kansas City. Four were furnished at Herrington, Kans., 13 at Caldwell, Kans., 3 at El Reno, Okla., and 5 at Fort Worth, Tex. These two examples are fair illustrations of the efforts made to furnish tourists for these organizations wherever they could be secured. In other words, the department did not lose track of organizations, but continued to serve these organizations in the above manner and to follow them until their arrival at destination.

In cases where tourist cars could not be furnished, day coaches were supplied by the railroads at the rate of one double seat for each man where the distance was long. In some instances day coaches were supplied at the rate of four seats for each three men for at least a portion of the journey; this the railroads considered necessary, due to the fact that at the beginning of the mobilization it was anticipated that movements would be kept up in the same intensity throughout this concentration as in the first 48 hours, in which case the railroad equipment necessary could only have been obtained by annulling many of the most important trains of the railroads and using the equipment therefrom for the movement of troops. The railroads, in case of necessity, were prepared to proceed to this extremity. In all cases, where it was possible to do so, tourist equipment for the entire movement was furnished, but where not immediately available the troops were met en route and transferred

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to tourists in every possible case. This proved to be a wise method, inasmuch as it kept all tourist equipment in constant use.

Official reports from all military departments show that no organization moved in coaches with less space than three men to every four seats, and wherever equipment was available the railroads furnished two seats for each man. The total number of men transported in coaches showed an average of 30 men to each coach.

With all this large number of persons transported in special trains, on special schedules, but one accident involving any injury to the men was reported. This occurred to a train of the First Minnesota Field Artillery, due to a collision with a commercial train, in which three men were injured—two of them slightly and one seriously but not dangerously—and with this exception the transportation of the militia was accomplished without accident.

Although the movement of the Organized Militia to the border came at a time when the commercial traffic on railroads of the United States was the largest in years, the transportation of the militia was performed with very little interference with regular train service and with no congestion whatever, either at initial or terminal points or en route. As an example, there moved into the Brownsville district during the month of July, 1916, 106 special trains, composed of 1,216 cars of passengers and 1,201 cars of freight for the Army, a total of 2,417 cars, in addition to 680 cars of Army supplies handled in freight trains and the usual commercial traffic. This district is reached only by one single-track railroad line, and all rolling stock had to be returned over the same line. The cars were unloaded at once and hauled back and there was at no time any delay in unloading nor was there any congestion.

Considering the great distances traveled by the militia from the various camps to the Mexican border, the fact that there was but a single accident, and that of a minor character, the celerity with which the trains were moved and the entire absence of congestion or delay, it is believed there has been no case in history where troops have been as well and safely transported or as well cared for while en route as in the recent mobilization.

Drayage and hauling.—During the fiscal year 1916 the cost of drayage, cartage, and hauling was $69,256.47, as shown below:

Drayage at posts	$44,633.19
Drayage at depots and arsenals	24,623.28
Total	69,256.47

The bulk of the expenditures for hauling at posts is incurred at posts in Alaska and the Canal Zone, where owned means of transportation is insufficient; at Coast Artillery posts in the United States that are situated on islands, necessitating hauling from railroad stations to docks; and at some of the western posts that are situated a considerable distance from railroad, such as Fort Apache, Ariz., and Fort Clark, Tex. The approximate division of the amount shown above is as follows:

Alaska	$16,000	Interior western posts	$12,000
Canal Zone	5,000	Miscellaneous posts	3,000
Coast Artillery posts	8,000		

The drayage at depots is incurred at cities where owned means of transportation is either unavailable or insufficient.

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Transportation accounts acted on.—During the fiscal year 1916 a total of 1,442 transportation accounts, aggregating $203,930.69, were received and acted on in the transportation division, office of the Quartermaster General, as shown below:

Accounts payable from appropriations pertaining to other bureaus of the War Department (699)	$64,885.33
Disputed accounts payable from appropriation "Supplies, Services, and Transportation" (743)	139,045.36

The accounts prepared by the disbursing officers of the Quartermaster Corps, covering transportation payable by other departments of the Government, are forwarded direct to such departments for payment. The accounts paid by the disbursing officers from appropriation "Supplies, Services, and Transportation" are not received in the transportation division, but pass through the finance and accounting division to the Auditor for the War Department, the 743 accounts referred to above being those in which disputes have arisen as to the proper basis of settlement.

The four offices of the Quartermaster Corps charged with the settlement of transportation accounts during the fiscal year 1916 paid transportation accounts in which were included a total of 76,353 transportation requests and 72,849 bills of lading.

Motor transportation.—The first motor truck for carrying supplies was procured by the Quartermaster's Department in June, 1907, since which time the Quartermaster's Department has made constant progress in developing the motor truck as a means of transportation. Appropriations for this purpose, until recently, have been very limited. The progress of development, however, considering these circumstances, has been very satisfactory. The Quartermaster's Department first took up the matter of operating trucks seriously in 1911, and extensive experiments and observations have been made annually since that time. Near the close of the fiscal year 1916, however, extensive opportunities were afforded for determining the value of motor transportation under severe conditions in connection with the operations in Mexico and along the Mexican frontier.

The first specifications of the Quartermaster's Corps were written in 1913, after extensive correspondence with manufacturers and the Society of Automobile Engineers. These specifications have been revised and brought up to date annually. The revision of 1916 was carefully prepared in consultation with the Society of Automobile Engineers, which has given this department valuable and much appreciated assistance in solving the problems of motor transportation.

In this connection it may be stated that it is very difficult for motor-truck manufacturers to immediately effect changes to conform to the requirements of military trucks, for the reason that orders for materials are placed many months in advance of the time when it is required to enter into the manufacture of trucks.

During the early part of the fiscal year 1916 motor transportation was confined to operation of motor trucks in connection with the transportation of supplies between base depots and outlying camps on the Mexican border, in connection with the operation of Quartermaster Corps depots, and at a few posts in the United States and over-sea possessions where motor transportation could be installed at a saving over animal-drawn transportation. By careful observations and such experiments as could be undertaken with the limited funds appropri-

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ated for procurement of motor transportation experience of great value was obtained, demonstrating that motor transportation can be relied upon under severe road conditions. Tentative organizations and regulations for all motor units, repair shops, and subsidiaries were prepared in the office of the Quartermaster General and distributed to those charged with handling these units, so that necessary steps were taken, so far as it was possible for this office to do so, under these new conditions.

When instructions were given for the organization of an adequate military force of troops to cross the Mexican border in pursuit of the Mexican band which attacked the town of Columbus, N. Mex., and troops there on the morning of March 9, 1916, this office was in position to take immediate steps to procure necessary motor transportation which it was foreseen would be required. On March 11, 1916, the first call was received from the Southern Department for two motor-truck companies, consisting of 27 motor trucks each, of 1½ tons capacity, equipped with necessary personnel for their operation. As soon as the approval of the Secretary of War was received these trucks were purchased and provided with the necessary personnel, hired at the factories at which the trucks were manufactured. The personnel conformed to the organization above referred to. The two motor-truck companies first ordered left the region of the Great Lakes at 12 o'clock midnight, March 15, and early on the morning of March 16. Both were sent by special-train service to Columbus, N. Mex. Two additional truck companies followed soon thereafter, as well as the necessary tank trucks for carrying gasoline, oil, and water.

It was soon found that motorcycles which originally accompanied these truck companies for carrying a certain portion of the personnel were unsatisfactory in operation over the heavy sandy country in Mexico where no made roads exist. Upon the recommendation of the local authorities light automobiles of the roadster type were substituted for use of motor-truck company commanders and truckmasters in lieu of motorcycles and have been found more satisfactory.

One of the most important features in connection with the operation of motor trucks is that they be equipped with a strong and suitable body. This is especially necessary where the roads over which they operate are rough and uneven. The body should be specially constructed and suitable for the work for which intended. Whilst the heavy body provided for in the specifications of the Quartermaster Corps adds materially to the weight of the truck, it more than makes up by its longevity and carrying capacity.

As the experience of the department becomes more extensive in the operation of motor trucks under the extremely severe conditions to be found in the operations in Mexico, many defects developed in some of the trucks in use; some of them of minor character, which could be easily corrected; others of a much more serious character. In general, however, it may be stated that the provisions of the specifications issued by this department were found to be based on correct principles for the service for which these trucks were intended.

The department has been greatly assisted by representatives of various truck manufacturers in the study of defects and recommendations for improvement in the motor transportation now in operation. By the end of the fiscal year 10 motor-truck companies, each consisting of 27 motor trucks of 1½ tons capacity, 6 motor-truck com-

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panies consisting of 28 motor trucks of 3 tons capacity, and 2 motor-truck companies each consisting of 33 motor trucks of 3 tons capacity had been purchased and were in operation along the Mexican border or en route to that point to be placed in operation. Of the above truck companies, 10 companies of 1½-ton trucks and 2 companies of 3-ton trucks were in operation on the line of communications which extended from Columbus, N. Mex., to San Antonio, Mexico, 301 miles from Columbus.

Upon the recommendation of the department authorities, Southern Department, a proportion of 3-ton trucks were supplied for use on the line of communications into Mexico, and at certain points along the Mexican border. At present there are 8 companies of 3-ton trucks in service in connection with troops operating in the Southern Department. Reports received up to this time indicate that these trucks are satisfactory in dry weather, but it is reported that during the rainy season the lighter trucks of 1½ tons capacity are more reliable.

From reports received it would appear that these truck companies were averaging somewhat more than 60 miles per day, in many instances as high as 80 to 90 miles per day, but due, however, to constant travel, the roads are reported to have become almost impassable. Steps were taken early in these operations to provide road machinery for necessary repairs to the roads. This work was done by the Engineer Department with funds and machinery furnished by the Quartermaster Corps.

From the time that the expedition went into Mexico to June 30, 1916, there were purchased for use on the Mexican border and with the expedition into Mexico 588 motor trucks; 57 motor tank trucks for carrying water, oil, and gasoline; 10 motor machine-shop trucks for repairing motor transportation in transit; 6 motor wrecking trucks; 75 automobiles; 61 motorcycles; and 8 tractors for repairing roads, miscellaneous road machinery, repair parts, and equipment, amounting to $2,175,670.09.

The policy pursued in furnishing transportation for operations in Mexico and in connection with the troops on the Mexican border was to furnish only such makes of trucks as had been tried out under the severe service conditions prevailing in Mexico and on the border and had proven satisfactory to a committee appointed by the department authorities. All motor-truck manufacturers applying were given authority to place their trucks on the line of communications at Columbus, N. Mex., for demonstration and test. The operations of these trucks were carefully observed, and upon their performance on the line of communications subsequent purchases were made.

The commanding general, Southern Department, states that "All motor-truck manufacturers agree, without exception, that their service on our line of communications from Columbus, N. Mex., south into Mexico was the hardest test of motor-truck transportation they have ever known, and no make of truck was purchased for this service that was not first tested out on our line of communications and recommended as satisfactory by officers who actually tested out these machines on the line."

In this way it is believed that the Government has secured the best makes of motor-truck transportation for this severe class of service that can be procured in this country. Motor-truck manufacturers have expressed themselves as being well pleased to have been afforded an opportunity of testing out their trucks, even in cases where trucks

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have not proven satisfactory for the service, inasmuch as it discloses the nature of the weaknesses of such truck and led manufacturers to modify and improve their trucks for this class of service. It is realized by them that the truck best suited for the military service is also best suited for use of the average farmer over ordinary country roads and across fields.

The commanding general, Southern Department, reports that the approximate cost of operation of trucks per ton-mile is $0.70, which includes all incidentals, such as upkeep of repair shops, roads, etc.

Among officers of experience with motor trucks it is known and realized that speed is the greatest menace to the successful operation of trucks. It is the hardest thing to control and causes more expense than all other things combined in connection with the handling of motor trucks. Many officers of the Army are now getting valuable experience and gaining a considerable knowledge of motor-truck transportation, and no doubt in the future will be able to handle such problems better than they have in past, and all of them will realize that care is essential in the handling of this class of transportation.

The commanding general, Southern Department, states that, due to the necessity of quartermasters devoting their time to the supply situation on the Mexican border, it was impossible to obtain full reports with reference to the operation of motor transportation in the Southern Department; therefore complete data with reference to operating expenses of the various kinds of motor vehicles during the fiscal year 1916 must be included in the report which will be rendered for the fiscal year 1917.

This office is continuing its efforts in conjunction with the Society of Automobile Engineers, manufacturers, and Government departments in developing our present specifications, with a view to making such changes as will adequately meet the requirements of the Government and which it is felt will eventually harmonize to a greater extent than has been expected heretofore with the needs of private users of commercial motor vehicles. Some well-qualified experts feel that within two or three years the commercial product will approximate what, according to the best opinion, will be suitable for operation in all except special cases of Government service.

Trailers.—During the fiscal year eleven 2½ to 3 ton and one 1½-ton trailers were purchased for use in connection with the operation of motor transportation on the Mexican border, costing $8,023.50.

So far trailers have not proven satisfactory. It is not believed that they can be generally utilized in divisional trains, though in certain instances it may be found practicable to use them on the line of communications.

Road machinery.—The following road-making machinery was purchased during the fiscal year for use in connection with the repair of roads into Mexico:

Number.	Articles.	Cost.	Number.	Articles.	Cost.
3	Holt tractors	$14,250	18	Coupling poles	$18
2	Phoenix tractors	8,900	3	Russell graders	2,724
2	Knox tractors	10,200	3	Austin graders	1,485
1	Buckeye tractor	4,800	4	Acme scrapers	632
3	Monarch road rollers	4,950		Tractor parts	600
3	Indian steel drags	105			
18	Watson dump trailers	2,160		Total	51,033
4	Tractor poles	47			

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Issues to the militia.—Supplies to the value of $275,059.75 were issued by the transportation division to the Organized Militia during the fiscal year under authority of statutes providing for such issues, as follows:

Items.	Number.	Cost.	Items.	Number.	Cost.
Ambulances, horse-drawn	37	$8,399.00	Oats, pounds	1,479,811	$24,532.68
Harness, lead, s. s	2,126	41,356.85	Hay, do	1,728,544	15,904.50
Harness, wheel, s. s	1,838	42,500.00	Bran, do	36,023	471.42
Saddles, riding	12	336.00	Bedding, do	386,547	1,991.97
Wagons, escort	921	118,780.50			
Miscellaneous articles		20,786.83	Total	3,630,925	42,900.57
Total	4,934	232,159.18			

No gratuitous issues of such supplies were made to the Organized Militia of the District of Columbia.

Forage.—The expenditures during the fiscal year for forage for animals pertaining to the Army amounted to $3,563,251.15. This includes the forage used in the Philippine Islands, Alaska, Hawaiian Islands, Porto Rico, and the Panama Canal Zone, except native grass and bedding purchased in the Philippine Islands. In addition to the above there was purchased 127,179 pounds of dog food at a cost of $8,237.60.

Quantities and cost of forage and bedding purchased during the fiscal year 1916, except that purchased for the Philippine Islands:

Kind.	Pounds.	Total cost.	Average cost.
Oats	108,152,997	$1,979,596.86	$1.8304
Hay	140,198,528	999,733.42	.7131
Bran	2,674,662	34,732.72	1.2903
Corn	1,008,189	20,253.52	2.008
Barley	2,262,274	28,915.21	1.28
Shiverick compressed forage	71,400	1,963.50	2.75
Bedding	23,043,885	112,825.87	.4893
Peat moss	8,995	80.05	.889
Dog food	127,179	8,237.60	6.39
Total	277,548,107	3,186,338.75	
Total forage and bedding purchased (except for the Philippines and exclusive of dog food)	277,420,928	3,178,101.15	

Of the above supplies the following were shipped to Alaska, Porto Rico, Panama Canal Zone, and the Hawaiian Islands:

	Pounds.	Cost.		Pounds.	Cost.
ALASKA.			PANAMA CANAL ZONE.		
Oats	504,149	$7,652.04	Oats	407,520	$10,841.82
Hay	1,013,544	8,372.59	Hay	639,483	7,827.25
Corn	10,000	176.00	Bran	9,500	131.67
Barley	140,000	1,806.00	Bedding	127,710	888.49
Bran	24,990	320.97	Total	1,184,213	19,689.23
Bedding	240,900	1,089.45			
Dog food	127,179	8,237.60	HAWAIIAN ISLANDS.		
Total	2,060,762	27,654.65	Oats	10,600,000	146,741.96
PORTO RICO.			Hay	14,822,117	123,603.96
Oats	487,885	11,005.34	Bran	220,000	2,722.50
Hay	720,509	9,722.50	Total	25,642,117	273,068.42
Bran	54,951	992.55			
Bedding	128,838	1,488.05			
Total	1,392,183	23,208.44			

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Of the above supplies the following were purchased in the Hawaiian Islands:

	Pounds.	Cost.
Hay	1,000	$10.00
Bedding	2,413,050	16,069.36
Total	2,414,050	16,079.36

The following quantities of forage were purchased for shipment to the Philippine Islands during the fiscal year 1916:

	Pounds.	Cost.
Oats	14,000,000	$180,950.00
Hay	24,000,000	204,200.00
Total	38,000,000	385,150.00

The following forage was purchased in the Philippine Islands during the fiscal year 1916:

	Pounds.	Cost.	Average cost.
Green forage	8,351,200	$21,559.16	$0.259
Bedding	2,486,000	6,446.20	.26
Total	10,837,200	28,005.36	.....

The matter of amending contracts for forage so as to permit contractors to supply grades of hay and grain as fixed by the grain associations and chambers of commerce was considered. It was represented that the peculiar conditions existing in various sections made it difficult for inspecting officers to accept forage that would comply in all respects with the specifications. The Department of Agriculture was consulted, as that department had assisted in the preparation of the specifications in use by this department, and it was concluded that contractors should have no difficulty in meeting the requirements called for in regular specifications. No change was therefore authorized, except that a modification so that oats which were clean and practically free from other grains could be accepted. No change was authorized in the specifications for hay.

Compressed forage.—An extended test was begun in the Eastern Department of compressed forage with a view to determining if it will be possible either to definitely adopt this ration for certain conditions of field service, or to suggest such minor changes as experience may indicate to be necessary. A quantity of compressed forage was purchased and issued to posts in the Eastern Department, but owing to the withdrawal of troops for service on the Mexican border before the test could be concluded, no definite conclusion was reached as to its value. A test on the Mexican border under service conditions has been ordered, and this test should decide if there are any merits in this type of forage.

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Forage shipped to the Philippine Islands.—Oats and grain hay sent to the Philippine Islands from the United States during the fiscal year have been of good quality and sufficient at all times.

Remount service.—Animals purchased by the Quartermaster Corps during fiscal year 1916:

Kind.	Number.	Total cost.	Average cost.	
			1916	1915
Cavalry horses	8,733	$1,299,880.79	$148.85	$146.00
Artillery horsses	2,255	371,265.08	164.64	150.15
Riding horses	137	20,114.14	146.82	152.11
Young horses	2,329	320,574.92	137.64	134.46
Draft horses	6	1,470.00	245.00	218.24
Bell horses	2	200.00	100.00	.....
Draft mules	2,709	510,288.25	203.38	184.55
Pack mules	1,434	189,451.50	132.11	140.13
Dogs	28	1,400.00	50.00	51.53

The average cost of mounts for the year is $149.53 per head.

During the year 1,530 animals were condemned, sold, etc.; 437 died; a total of 1,967. There remained on hand June 30, 1916, in the United States, Hawaii, and Panama, excluding animals at remount depots:

Cavalry horses	12,613	Pack mules	2,073
Artillery horses	3,715	Riding mules	539
Riding horses	2,042	Dogs	121
Draft horses	930		
Bell horses	27	Total	28,814
Draft mules	6,754		

		Horses.	Mules.
Fort Keogh Remount Depot, Fort Keogh, Mont.:			
Animals on hand July 1, 1915		893	6
Animals received during the fiscal year 1916		2,075	.....
Total on hand and received		2,968	6
Issued during the year—			
Cavalry horses	999		
Artillery horses	164		
Riding horses	5		
Horses sold to officers	1		
Horses died	62		
Horses otherwise disposed of	4		
Total disposed of		1,235	.....
Balance on hand June 30, 1916		1,733	6
Fort Reno Remount Depot, Fort Reno, Okla.:			
Animals on hand July 1, 1915		992	241
Animals received during the fiscal year 1916		3,215	.....
Total on hand and received		4,207	241
Issued during the year—			
Cavalry horses	1,956		
Artillery horses	383		
Riding horses	67		
Horses sold to officers	29		
Horses died	62		
Horses otherwise disposed of	17		
Total disposed of		2,514	.....
Mules issued	232		
Mules otherwise disposed of	1		
Total disposed of		.....	233
Balance on hand June 30, 1916		1,693	8

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		Horses.	Mules.
Front Royal Remount Depot, Front Royal, Va.:			
Animals on hand July 1, 1915		448	34
Animals received during the fiscal year 1916		1,104	.....
Total on hand and received		1,552	34
Issued during the year—			
Cavalry horses	535		
Artillery horses	199		
Riding horses	14		
Draft horses	2		
Horses sold to officers	34		
Horses died	24	.....	
Total disposed of		808	.....
Mules issued		.....	1
Balance on hand June 30, 1916		744	33
Summary of remount depots:			
Animals on hand July 1, 1915		2,333	281
Animals received during fiscal year 1916		6,394	.....
Total on hand and received		8,727	281
Issued during the year—			
Cavalry horses	3,490		
Artillery horses	746		
Riding horses	86		
Draft horses	2		
Horses sold to officers	64		
Horses died	148		
Horses otherwise disposed of	21		
Total disposed of		4,557	.....
Mules issued	233		
Mules otherwise disposed of	1		
Total disposed of		.....	234
Balance on hand June 30, 1916		4,170	47

The number of horses that passed through the Army remount depots during fiscal year 1916 was much greater than the number that were handled during fiscal year 1915, as shown by the following comparative table:

	Fiscal year 1916.	Fiscal year 1915.	Increase in 1916 over 1915.
Received at remount depots	6,394	2,399	3,995
Issued from remount depots	4,557	1,964	2,593
On hand at remount depots	4,170	2,333	1,837

The quality of horses purchased during the past fiscal year showed a marked improvement over those bought previously, due, in part, to the stallions provided by the Department of Agriculture, and to the better knowledge that farmers and breeders have of the type of horses desired, as the result of coming in contact with the remount officers who can advise them as to the type of animals required by the Army. However, the breeding of suitable horses for military purposes could be greatly improved and their number increased if the appropriations were increased so as to enable the Department of Agriculture to purchase additional stallions and extend the present plan of breeding.

Foreign Governments have purchased and exported thousands of mature horses out of the country. This has reduced the horse stock considerably in the United States and has increased the prices of

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mature horses. However, it is not thought that the shortage in mature horses will materially affect the supply of animals needed by the Regular Army during peace time, for the reason that a sufficient number of young horses can be obtained and handled through the remount depots to meet the normal requirements of the Army.

In March, 1916, two auxiliary remount depots were established—one at El Paso, Tex., and the other at Fort Sam Houston, Tex.—for the purpose of providing the necessary means of maintaining the animals of the forces along the border in good condition. These are the important reservoirs from which animals are drawn for the equipment of new troops and to replace those that are lost or become unfit for service from any cause. At these points hospitals have also been established, to which animals are withdrawn from the service when they become sick or, from long continuous service, require recuperation.

Reports indicate that horses shipped from the remount depots at Fort Keogh, Reno, and Front Royal to troops on the border and elsewhere arrived in good condition. On May 16, 1916, the depot quartermaster, El Paso, Tex., stated that horses shipped to that depot from the Fort Keogh remount depot were received in excellent condition; that no horses were sick, none appeared to be gaunted, and that the condition of the horses was so fine that his veterinarian was most enthusiastic about them, remarking while they were being unloaded, "This, from a standpoint of condition, is the best shipment we have received and appear ready to go to work at once."

On the other hand, a good deal of sickness and a number of deaths were reported among mature horses purchased under contract and shipped to the Mexican border, due to the shipping fever contracted in passing through stock yards. These animals had to be quarantined for several weeks and doctored before they became fit for issue to troops.

In a report received from the authorities in the Southern Department, they state that the wisdom of issuing green animals to organizations to bring to the border with them immediately is seriously doubted; that about 150 deaths have been reported in the New York division at McAllen, Tex., and a board of mounted officers has reported as follows: "The board on mortality among public animals at McAllen considers that mortality is not abnormal in view of conditions of mobilization. Losses mostly occurred amongst horses purchased for the emergency, of which nearly all were sick when received by organizations and many sick when entrained."

The prudence of handling as many horses as possible through the Army remount depot is apparent.

Fort Keogh remount depot.—In the fiscal year 1916 the exterior painting of all buildings around the parade and on entrance road has been completed by the use of depot labor and material secured under the annual apportionment for repair.

An interior and exterior electric lighting system was installed at a cost of $2,266.20, current being purchased from Miles City.

Four grooming machines, electrically driven, were installed at a cost of $839.52, which will permit the thorough grooming of all horses being trained, an important training factor, which, without this equipment, has necessarily been less thoroughly done.

A steam heating plant was installed in the commanding officer's quarters by depot labor at a cost of $617.19 for apparatus.

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A tank of 8,000 gallons capacity was installed by depot labor at a cost of $395.95, for storage of fuel oil for power farm machinery. This enables the depot to receive the oil in car lots at about half the cost of other methods.

Three windmills were installed at a cost of $217.50 at artesian wells in pastures. They will provide water continually and the overflow from the troughs will fill holes and furnish water at all times for animals in pasture. To accomplish this heretofore it has been necessary to use several men with gas engines.

Two 30–60 oil pull tractors, each with gang plows, were purchased at a total cost of $6,171.40. They were necessary to carry the farming operations beyond the acreage of 1915.

The pasture area remained unchanged—about 35,000 acres. The area cultivated in 1916 was 1,625 acres, as against 1,275 acres in 1915. It is proposed to break about 300 acres of new land in the fiscal year 1917, only to fallow an equal amount now cultivated, as the total of about 1,600 acres is all that can be handled with the present personnel and existing irrigation plant.

Forage grown during fiscal year 1916:
- Oats, 1,750,000 pounds.
- Hay {500,000 pounds (alfalfa). / 450,000 pounds (blue joint).
- Straw, 2,000,000 pounds.

Approximate value of above forage, $40,000.

Forage grown during fiscal year 1915:
- Oats, 116,250 pounds.
- Hay {43,300 pounds (alfalfa). / 21,750 pounds (timothy).
- Straw, 296,390 pounds.

Approximate value of above forage, $3,270.

Front Royal remount depot.—During the fiscal year the following progress has been made in improving the depot:

Buildings completed and received from contractor:

3 colt stables.	1 coal storage (bunker).
1 granary and hay shed.	1 oil house.
3 civilian quarters.	1 dispensary.
1 barracks.	1 set double noncommissioned officers' quarters.
1 administration building.	1 veterinary ward.
1 quartermaster stable.	1 fire station.
1 farm implement shed.	1 granary office.
10 isolated quarters for enlisted men.	10 sheds.

Roads constructed:
- Macadam road from main gate to officers' quarters.
- Macadam road from officers' quarters to administration building.
- Roads to feeding sheds repaired.

All feed sheds have been repaired.
200 trees have been planted at depot.
500 rods interior fencing completed.

About 100 acres of land were under cultivation in 1916, compared to 45 acres in 1915. It is contemplated to break up such land as it is possible to farm where briars, locust, etc., have ruined the turf—from 100 to 150 acres.

Forage raised during the fiscal year:	Value.
140,000 pounds hay	$1,386.00
540 bushels rye	513.00
28,000 pounds corn	280.00
32,450 pounds straw	145.22
Total	2,324.22

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Forage has been raised as an incident to the main object, the planting of barren tracts with permanent grass pastures. This has been slightly extended to the planting of tracts in alfalfa, so that a permanent hay crop is assured on an otherwise worthless field.

Fort Reno Remount Depot.—Improvements have been made at this depot during the fiscal year, which have largely been in the nature of caring for buildings, roads, and grounds in the vicinity of the post. Other improvements are contemplated and will be effected before winter. Temporary shelter will be constructed in the vicinity of the post where feeding can be readily carried on without the loss of time and expense of labor.

Acreage under cultivation during the fiscal year 1916 was the same as that for fiscal year 1915. The acreage in pasture was also the same as that for fiscal year 1915. Up to June 30, 1916, 316 tons alfalfa hay were baled and stored. Experiments were made with sudan grass, and this crop yields excellent returns. The feeding value of sudan grass has not yet been ascertained, but should it prove to be a good feed crop and relished by the animals, a considerable acreage of it will be sown next year. The feterita forage grown was of excellent quality.

Miscellaneous statements.—The following statements pertaining to transportation are appended:

Statement showing principal movements of troops in the United States for strictly military purposes, marked "Exhibit No. 14."

Statement showing special movements of troops in connection with labor strikes, parades, dedications, celebrations, etc., marked "Exhibit No. 15."

Statement showing number of National Guard and Organized Militia moved to Mexican border from each State prior to August 1, 1916, marked "Exhibit No. 13."

Statement showing operations of the transportation division of the Quartermaster Corps in the Hawaiian Islands, marked "Exhibit No. 16."

Statement showing operations of the transportation division of the Quartermaster Corps in the Philippine Islands, marked "Exhibit 16½."

Statement showing weight of baggage of officers, noncommissioned officers, and civilian employees transported at public expense, with cost of shipment and cost of packing and crating, marked "Exhibit No. 17."

Statement showing cost to the Quartermaster Corps of operation of military telegraph lines in Alaska exclusive of the operation of the cable ship *Burnside*, marked "Exhibit No. 18."

Statement showing motor trucks purchased during the fiscal year, except the Philippine Islands, marked "Exhibit No. 19."

Statement showing automobiles in use June 30, 1916, except Philippine Islands, marked "Exhibit No. 20."

* * * * * * *

Very respectfully,

HENRY G. SHARPE,
Brigadier General, Quartermaster Corps,
Acting Quartermaster General.

REPORT OF THE SURGEON GENERAL.

WAR DEPARTMENT,
OFFICE OF THE SURGEON GENERAL,
Washington, September 1, 1916.

The SECRETARY OF WAR.

SIR: I have the honor to submit herewith the annual report upon the work of the Medical Department. This covers a study of the

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health and sanitary conditions of the Army for the calendar year 1915, and a financial statement for the fiscal year ending June 30, 1916. I desire here to invite attention to certain matters of interest in this report.

GEOGRAPHICAL DISTRIBUTION.

The United States Army, aggregating approximately 100,000 men, had during the year 1915 a wide geographical range in its various activities. Troops were stationed in greater or less numbers from the sixty-sixth meridian of west longitude to the one hundred and fifteenth meridian east of Greenwich, and from the sixty-fourth degree north latitude to within 7° of the equator; distributed over two hemispheres, literally, from St. Michael to Mindanao, and from Porto Rico to Pekin.

The significance of this far-extended field of action in its relation to the health and disease of the Army is readily appreciated by the most superficial investigator, and to the student of vital and social statistics and their application to the comparative study of races and nations, it assumes a particular importance.

The medical officers of the Army in their capacity of sanitary advisers to the line, have thus had the opportunity of studying and applying the recent advances of modern preventive medicine under the most varied and interesting conditions.

In all the changing circumstances of garrison, camp, and field, the work of the Medical Corps has measured well up to the best traditions and to the highest standards of the profession. The success they have achieved is the result of earnest and painstaking effort coupled with the most important factors—the sympathetic cooperation and loyal support of those they served.

* * * * * * *

GENERAL HEALTH OF THE ARMY.

The general health of the Army was excellent during the year 1915. There were no epidemics or unusual incidence of infectious diseases.

The mean strength of the entire Army for the calendar year 1915, upon which the statistics contained in the annual report are based, was 103,842.

The noneffective rate for the entire Army for 1915, from all causes, was 25.22 per 1,000 (for disease alone 20.85), which is slightly higher than that for 1914, the lowest noneffective rate in the history of the Army; but still much below the rates for any preceding year, except 1913, when the rate was 23.98. The noneffective rate during the past decade shows a steady reduction. In 1906 it was 47.86 per 1,000.

The admission rate for the entire Army for 1915, was 726.19, as compared with 660.45 per 1,000 for 1914. With the exception of 1913–14, the 1915 admission rate is the lowest in the last 10 years. The admission rate shows a marked decline since 1906, when it was 1188.00 per 1,000.

The death rate of the entire Army for 1915, from all causes, was 4.45 per 1,000, compared with 4.40 for 1914, which was the lowest mortality rate in the Army for many years. The death rate from disease was 2.53 per 1,000 for 1915; the same rate for 1914 was 2.35, and that for 1906 was 3.77.

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The discharge rate for the year 1915, from all causes, was 14.06 per 1,000, somewhat higher than 1914, when the rate was 12.78 per 1,000, but still markedly less than the discharge rates prior to 1910, when they ranged from 16.64 upward.

The total losses of the Army, from all causes: Deaths, discharges, and retirements, was 18.03 per 1,000 for 1915; for the year 1914 it was 16.86, the lowest in the past decade.

Malarial fevers show the lowest noneffective rate in the history of the Army, 0.54. In 1906 the noneffective rate for malarial fevers alone was 2.55 per 1,000. The decade following has demonstrated the effectiveness of the antimalarial measures that have been unceasingly employed by the sanitary officers of the Army each year, exhibiting, with but two exceptions, a marked decrease in the incidence of the disease.

The record in the Philippines has been specially creditable compared with former years, though here, as in the Canal Zone, the Medical Department has been at some disadvantage, through lack of screening or other antimosquito requisites, due to insufficient appropriation of funds for this important work. There should be no further delay in properly screening all buildings in the Tropics occupied as hospitals, barracks, or quarters.

The highest noneffective rate, for disease alone, for 1915 was among the troops stationed in China, 31.78 per 1,000. Then follows in order: Panama with 21.66; the Philippine Islands with 21.42; the United States, 20.90; Porto Rico, 20.57; and Hawaii and Alaska with the lowest noneffective rates for the year 1915, 16.20 for Hawaii and 6.02 for Alaska.

TYPHOID FEVER.

There were eight cases of typhoid fever in the entire Army during the year 1915; no deaths resulted, all making good recoveries. Of the eight cases mentioned, four only occurred within the continental limits of the United States; the four other cases of typhoid fever were reported from Hawaii.

During the Spanish-American War, from May 1, 1898, to June 30, 1899, the total number of deaths in our armies, Regular and Volunteer, was 6,619. This was equivalent to an annual mortality rate of 33.03 per 1,000 of strength; the rate for disease alone being 25.68. Typhoid fever was accountable for more than one-half of the deaths from disease. The total number of deaths from typhoid fever was 2,774—equal to an annual rate of 13.84 per 1,000.

In the United States the regulars lost 361 and the volunteers 1,890 from this fever; these numbers being equivalent to the respective rates of 7.78 and 18.21 per 1,000 of strength.

The record of the fight against typhoid fever in the United States Army during the decade and a half since the Spanish War, constitutes one of the most interesting and brilliant chapters in the history of preventive medicine, beginning with the epoch making investigation of the "Typhoid Fever Board" into the manner of infection and dissemination of the disease in the military camps of 1898, and culminating 12 years later in the equally notable adoption of antityphoid vaccination in the United States Army.

The results following compulsory vaccination in the Army are now well known and are exemplified by the record of the present year.

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MALARIAL FEVERS.

Malarial fevers no longer occupy the high place of a few years past in the sanitary statistics of the Army, when they ranked well up to the top of the list of those diseases producing the greatest admission and noneffective rates in our service. These rates have been steadily falling for the past decade, with the exception of the year 1912, when an unavoidable exposure of troops in a tropical campaign occurred with a resulting increase in the number of cases. The control of the disease in the Philippines since that time deserves special notice.

The admission and noneffective rates for the year 1915 for these fevers are the lowest in our experience in the Far East. This result has been achieved in spite of a serious sanitary handicap existing at certain of the posts where lack of screening in barracks and quarters and a badly malarial infected native population in close proximity makes the task a discouraging and difficult one. Appropriation of adequate funds for the proper screening of all hospitals, barracks, and quarters in the Philippine Islands should not be further delayed.

The admission rate for the entire Army during 1915 was 25.16 per 1,000, and the noneffective rate was 0.54 per 1,000.

MEASLES.

Measles is a disease rarely considered as serious by the layman and the practitioner, who see only an occasional isolated case without complications. Under ordinary conditions the mortality from the disease itself is not high, but in certain epidemics occurring among nonimmune (native) populations, in large institutions, schools, and armies, pulmonary and middle-ear complications make measles the most formidable and deadly of the eruptive fevers.

In the United States Army, outside of the recruit depots, but few cases of measles occur, and these usually in a mild form. The experience with the disease at several of our recruit depots has been quite otherwise, however. At these depots, during the winter months the period of most active recruiting, large numbers of young adults are assembled for instruction and equipment. A great many of these youths are from the country districts and particularly susceptible to infectious disease. Given cold weather, necessitating indoor life, an overcrowded barracks, young and nonimmune individuals in connection with the appearance of a specially virulent form of measles such as has repeatedly prevailed at Columbus Barracks, Ohio, and Jefferson Barracks, Mo., and you have the conditions which make an epidemic of measles much more to be feared than smallpox.

As has been stated, respiratory complications, particularly bronchopneumonia and empyema, together with frequent involvement of the middle ear, inevitably results in a high mortality and discharge rate.

The insidious onset of this disease among recruits and its rapid spread, when once started, through congested quarters, has, in the past, necessitated the cessation of recruiting for months and the rapid evacuation of the depots; all ordinary methods for the control of those epidemics having proved unavailing.

The chief factor in the spread of measles, as it has appeared in our Army, has resulted almost always from the overcrowding of susceptible and infected recruits.

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Before another season brings its usual round of cases, complications, and criticisms, prompt steps should be taken by the proper authority to provide at all of these recruit depots, and particularly at Columbus Barracks, Ohio, and Jefferson Barracks, Mo., the much-needed and often-recommended additional barracks.

TUBERCULOSIS.

Tuberculosis is the cause of the highest death rate in all armies under peace conditions, differing in no way in this respect from the experience among the civilian population, where it produces the greatest mortality of any infectious disease.

In the United States it has been stated that tuberculosis is responsible for approximately one-tenth of the deaths annually.

The difficulty of recognizing this disease in its early stages accounts in part for its appearance among soldiers in spite of the rigid and thorough physical examination to which they are subjected on admission into the service.

All cases of tuberculosis among American troops are sent, without delay, to the United States Army General Hospital, Fort Bayard, N. Mex., for prolonged treatment, if necessary, under climatic and other conditions most favorable for the arrest of the disease. The Army General Hospital at Fort Bayard, N. Mex., is intended, primarily, only for those who have pulmonary tuberculosis. The highly creditable record of cases in this hospital, for a decade or more, under the command of Col. George E. Bushnell, Medical Corps, a very distinguished authority on all that relates to tuberculosis, has been a gratifying feature of Army medical administration.

The admission rate for this disease for the entire Army for 1915 was 3.49 per 1,000.

VENEREAL DISEASES.

Venereal diseases still continue to constitute in the Army of the United States, as in those of other countries, a very serious factor against military efficiency of the Army, just as in civil life these same diseases occupy a similar commanding and threatening position in their relation to the welfare and usefulness of the community and State.

It should be clearly understood that the Army sanitarians and the military authorities generally are fully aware at this time, as they have been for many years past, of the necessity and importance of attacking and limiting by every possible means these so-called social diseases. To that end there have been formulated and put into vigorous operation measures designed to control to the greatest degree possible these infections, which always have their origin, so far as the soldier is concerned, quite outside of his military life and duties and far removed from any military authority or discipline. It is believed that no more comprehensive system of attack against a disease has ever been instituted in the Army or elsewhere than that at present in active operation in the United States Army.

It includes, among other features, regular medical examinations twice a month; prompt isolation, quarantine, and hospital treatment until cured of all found with infective conditions; court-martial and stoppage of pay; the hearty encouragement of athletic games and

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sports of all kinds; the furnishing of rational amusements; libraries, opportunity for study and for school; the best of food and clothing; and last, but not least, an earnest appeal to the moral and ethical side is not neglected.

In brief, the Army is controlling its own limited area and is successful within its garrisons and camps. The same measures, or similar ones, adopted by nearby civil communities would be equally effective. Until either the sex instinct is abolished or much altered, or Federal control is invoked as in certain other diseases far less threatening, we may expect that the disability from this cause will continue. In the meantime there should be no relaxing of effort on the part of the Army. The fight will be vigorously continued, with constant hope for increasing assistance and cooperation from the civil communities whose interests are quite as vitally concerned as those of the Army.

In connection with the subject, attention is invited to the remarkable report of the Royal Commission on Venereal Diseases, lately published in England, and also particularly to the recent State legislation in Australia, dealing drastically with venereal infections of every character.

ALCOHOLISM.

The admission and noneffective rates for alcoholism in our Army have steadily diminished during the past decade and a half, keeping pace with the general public sentiment and decreased use of stimulents of this character among all classes in all walks of life in this country.

The Army has banished alcohol from its garrisons and camps and the Navy has eliminated it from its ships and yards. All this before the outbreak of the great war, the struggle which, if it proves nothing else, has demonstrated long since, by the similar action of the various nations engaged, that alcohol and military efficiency have nothing in common and must hereafter be held unqualifiedly antagonistic.

LEGISLATION.

As a result of legislation reorganizing the Army under the national defense act of 1916, the Medical Department was placed, for the first time in its history, upon a satisfactory basis. This is especially true of the commissioned personnel.

The Medical Corps was reorganized upon a basis of seven medical officers to each one thousand of the enlisted strength of the Army, the increase to take place in five annual increments. This increase will add 1,107 officers to the Medical Corps of the Army, raising the total from 443 to 1,550. The ratios in the various grades remain as provided by law in the act of April 23, 1908:

	Per cent.
Colonels	3.16
Lieutenant colonels	5.42
Majors	23.70
Captains and lieutenants	67.72

The Dental Corps was reorganized and the probationary contract system abolished. Dental surgeons are now commissioned as first lieutenants and after eight years' service promoted to captains. It is further provided that after 24 years' service, not to exceed 15 dental surgeons may be promoted to the rank of major.

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The Veterinary Corps was established and becomes an integral part of the Medical Department. Appointments are made to the Veterinary Corps as assistant veterinarians with the rank of second lieutenant. After five years' service they are promoted to first lieutenant. The law provides that after 15 years veterinarians attain the rank of captain and after 20 years' service the rank of major.

A very important provision is made in the national defense act of 1916 for the assignment of not to exceed five officers of the Medical Department of the Army for duty with the military relief department of the National Red Cross, and also permits the erection of storehouses on military reservations for the use of the Red Cross and the use of Government buildings for the storage of their medical supplies.

Col. Jefferson R. Kean, Medical Corps, distinguished as a sanitarian and executive, becomes the first director general of military relief of the Red Cross, and has already utilized his extended experience to the very great advantage of both the Red Cross and the Army.

ARMY MEDICAL SCHOOL.

The Army Medical School, located at Washington, D. C., has had an unusually successful year.

Col. William H. Arthur, Medical Corps, is the present head of the school and has been its commandant since October, 1915. Associated under his direction, the staff of professors and assistant professors and special lecturers have given a valuable course of instruction to the student class, consisting of officers of the Medical Reserve Corps, who were candidates for appointment in the Medical Corps, medical officers of the Army and National Guard, and enlisted men of the Medical Department who were ordered to the school for special instruction.

The course has covered a wide range of subjects relating to medico-military science, the instruction being both theoretical and practical.

The laboratories of the school have produced all the vaccines used in the United States Army and in the National Guard, and have likewise furnished the antityphoid vaccine for the United States Navy.

The importance of this school to the military service can hardly be overestimated, and it is recommended that steps be taken looking to the securing by the Government of a suitable modern building specially designed for the Army Medical School. Heretofore its activities have been handicapped by crowded or imperfectly arranged rented buildings, and while the present quarters, recently occupied, are much better adapted to the purposes of the school than any of its former homes, yet they are far from ideal either in location or arrangement and leave much to be desired.

The Government should provide the Army Medical School with a permanent and modern home of its own.

LIBRARY OF THE SURGEON GENERAL.

It is desired at this time to call attention to the remarkable development during the past half century of this important adjunct of the Medical Department of the Army, and particularly to the great present need of a modern fireproof building for the proper housing of these valuable collections.

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The Surgeon General's library began as a small collection of medical books in the office of Surg. Gen. Lovell in 1835, numbering about 228 volumes in 1840, and increased to about 587 in 1862.

The library in 1865 came first under the master hand of John Shaw Billings, and to this able medical officer and distinguished bibliographer must be given the greatest credit for several unique features in connection with its development. In 1889 the collection consisted of about 1,000 volumes. In 1895 it had grown, under the administration of Capt. Billings, to 300,000 portraits, books, and pamphlets. During this period the librarian conceived and promptly initiated the ingenious plan of a medical catalogue, indexed for author and subject, that should embrace not only monographs and standard works but the reports of individual cases upon which so many conclusions of medical science depend.

From this beginning has developed the universal catalogue of medical literature, The Index Catalogue, the first volume of which was issued in 1880 and consisted of 880 quarto pages. Since that date at least one such issue has been made annually by him and his able successors; Billings himself having edited the entire first 16 volumes, which ran through the alphabet.

This index, requiring great technical knowledge, infallible arrangement, and unceasing industry, has been kept fully up to date and to the latest professional advances, and, making its way over the earth wherever medical science is known, has brought great credit to the Army, fame to its designer and compilers, and has received the high commendation of the whole world—praise not given to mediocre work.

The present librarian, Lieut. Col. Champ C. McCulloch, jr., in his annual report to this office, makes certain recommendations which are concurred in.

The Surgeon General's library on June 30, 1916, contained 563,238 bound volumes, theses, journals, transactions, unbound volumes and pamphlets, constituting the largest collection of medical literature in the world.

ARMY MEDICAL MUSEUM.

The Army Medical Museum was begun under the direction of Surg. Gen. William A. Hammond, United States Army, in 1862. It began very modestly, as all the great collections have, but with the passing years and under the skilled direction of many capable and devoted hands, it has grown into one of the largest, most instructive, and valuable museums in existence.

It consists now of approximately 47,000 specimens: Pathological, anatomical, comparative anatomy, microscopical, and miscellaneous, and about 15,000 photographs and negatives. About 8,000 specimens have been donated or exchanged with other instititions.

MEDICO-MILITARY OBSERVERS OF EUROPEAN WAR.

The Medical Department has had six representatives with the armies of the countries now at war. These officers of the Medical Corps are Lieut. Col. Alfred E. Bradley, Majors Joseph H. Ford, James Robb Church, Clyde S. Ford, and William J. L. Lyster, and Capt. Perry L. Boyer.

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Maj. Joseph H. Ford spent approximately 13 months with the Austro-Hungarian armies on the eastern front, his detail extending from September 26, 1914, to October, 1915. His reports received in this office have covered a wide range and are most comprehensive and valuable.

Maj. James Robb Church, who has been present with the French Army on the western front since January 28, 1916, has already forwarded much information of value in his reports on the medico-military conditions coming under his notice.

Col. Bradley, Maj. Clyde S. Ford, and Maj. William J. L. Lyster were officially detailed by the War Department as observers with the British forces in May, 1916, and are now actively engaged with their duties in the field. Their arrival in Europe was opportune, and the information received indicates that their observations will be of great interest and value professionally and scientifically.

Maj. Perry L. Boyer was in London, England, at the outbreak of the war and departed therefrom September 10, 1914, en route to Paris, France, as an observer with the French armies, being on duty in France until November 25, 1914, when he returned to the United States.

The reports made by the members of the Medical Corps detailed as observers in Europe are of such a character as to warrant, at the proper time, their presentation in an extended form for the information not only of the medical and military student, but for the interest they will have for the general reader.

ARMY NURSE CORPS.

The reports of the work of the Army Nurse Corps have been most gratifying, and a much-needed increase has been authorized for the coming fiscal year. Great care is exercised in the selection of its personnel, with the result that most satisfactory work is being done.

The mobilization of the regular troops and militia having resulted in the establishment of many hospitals on the border, the appointment of 276 nurses was authorized to meet the emergency. At this time there are on duty at the border hospitals:

Base hospitals:	
Fort Sam Houston, Tex	[1] 54
Fort Bliss, Tex	26
Brownsville, Tex	20
Eagle Pass, Tex	24
Nogales, Ariz	16
Camp hospitals:	
Deming, N. Mex	10
Laredo, Tex	10
Douglas, Ariz	10
McAllen, Tex	12
Total	182

Nurses have been and are being appointed in the regular corps as rapidly as possible to meet the need, and their numbers have been further augmented by the assignment to active duty of a large number from the reserve list, the enrolled nurses of the American Red Cross constituting this reserve.

[1] Includes 7 for assignment to duty on the hospital train.

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HOSPITAL TRAIN.

A hospital train, designed in the office of the Surgeon General and consisting of 10 Pullman cars built in the Pullman car shops at Chicago, has been prepared to meet the needs of the Medical Department and is now in operation. Five of the cars are stripped of berths and regular hospital beds have been installed; two large side doors for loading and unloading stretcher cases are provided; two of the cars are regulation sleepers and equipped with extra fans, call bells, medicine cabinets, linen cabinets, extra water and ice tanks, etc., installed for ambulant cases. One car has a complete operating room. The kitchen car is complete and so designed that it can care for over 200 sick.

In addition to the Regular Army personnel there will be nurses from the Army Nurse Corps to act as ward nurses in certain cars, diet nurses, and two are to be assigned to the operating car.

The train is painted maroon, with the insignia of the Army Medical Department, and with the train number and car number on each car.

This train will operate between the Mexican border, the west coast, Hot Springs, and the East. Such additional trains as may be necessary to meet the needs of the service will be provided, including a completely equipped bath and disinfecting train for use, if needed, on the border in connection with any possible appearance of typhus fever among troops.

EXPEDITION INTO MEXICO.

In March, 1916, an expeditionary force, consisting of United States troops of all branches, crossed the Rio Grande and entered northern Mexico. This force during most of the time has consisted of from 8,000 to 12,000 men (a monthly average of about 10,000). During an experience covering several months of arduous service under the most trying climatic and insanitary conditions this 10,000 has maintained a remarkable record of health and efficiency.

Its noneffective rates compare favorably with the best of the home troops under garrison conditions. The work of the medical officers and the sanitary personnel has been the subject of special commendatory reports by the commanding general of the expedition.

MOBILIZATION OF THE NATIONAL GUARD.

Under the provisions of the national-defense act of June 3, 1916, the State troops of the country were called into the Federal service in June, 1916, by an order of the President.

The National Guard of the United States, comprising a force consisting of approximately 135,000 officers and enlisted men of various branches, was rapidly mobilized in their respective State camps. Here they were subjected to a rigid physical examination, when time allowed, conforming to that required in the regular service; inspected, mustered, and equipped under the direct supervision of officers of the United States Army specially detailed for that duty. As rapidly as possible these soldiers from civil life were transferred to the large concentration and training camps in the Southern Department and stationed in close proximity to the troops of the Regular Army, some 40,000 of which had been occupying the border district adjacent

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to the Rio Grande for several years. This sudden and rapid movement of a large body of partially trained or quite inexperienced troops threw an enormous amount of work and responsibility on those charged with its execution, and particularly upon the staff and supply departments of the Army.

To the officers of the Medical Corps of the Army was given the task of making the physical examinations and administering the vaccination against typhoid fever and smallpox, immediately compulsory on entering the Federal service under the existing regulations. Their assignment to the different camps as sanitary inspectors and instructors added further to their important duties.

It can be fairly stated that this mobilization has been accomplished with promptness and with the minimum of disease and discomfort. In view of the general situation and the suddenness of the call there is little ground for complaint of any kind, and particularly from the standpoint of hygiene and sanitation. A comparison with a somewhat similar mobilization of citizen soldiers in the summer of 1898 and its results shows clearly the advance that has been made in the knowledge of preventive medicine and camp sanitation in the Army since the days of the Spanish-American War.

From the weekly telegraphic reports of "sick and wounded" for the combined forces on the southern border the sick rate since mobilization has been less than 2 per cent, which, expressed in terms of noneffectiveness, is equivalent to a rate of 18.13 per thousand.

The mobilization of the National Guard in 1916 offered a unique and valuable opportunity for instruction to the members of both the National Guard and the Regular Army. The medical officers of both branches have rendered excellent service, and the exceptionally low sick rates that have prevailed during the first few months in the combined camps of the border speak in the highest praise of their ability and efficiency.

HEALTH OF THE ARMY.

* * * * * * *

OFFICERS.

The mean strength of officers was 4,394, as obtained from the reports of sick and wounded of the Medical Department, and 4,873, from the office of The Adjutant General. There were 2,430 admissions, 18 deaths, and 103.58 constantly noneffective from all causes, equal to ratios of 553.03, 3.69, and 23.57 as compared with ratios of 495.76, 4.76, and 23.12 per 1,000 for the year 1914. The constantly noneffective rate was higher than for 1914; the admission also was higher.

The chief causes of admission and their rates were: Influenza, 60.54; bronchitis, 42.33; diarrhea and enteritis, 39.14; diseases of the pharynx, 31.63; diseases of the nasal fossae, 29.59, and dengue, 20.94.

OFFICERS RETIRED.

Eighteen officers were retired on account of disability during the year, making a rate for retirement for disability of 3.69 per 1,000 as compared with 6.22 per 1,000 for 1914. The discharge rate for dis-

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ability in enlisted men (all) was 14.06, as compared with 12.78 per 1,000 for 1914.

The following table shows the principal causes for which retirements were made and the rank and age of the officers retired:

TABLE No. 1.—*Retirement of officers, United States Army, year 1915, for disability, by causes and rank, grouped by ages.*

	Total.		Ages of officers, quinquennial groups.								
	Number.	Ratio per 1,000 of all officers.	24 years and under.	25 to 29 years.	30 to 34 years.	35 to 39 years.	40 to 44 years.	45 to 49 years.	50 to 54 years.	55 to 59 years.	60 years and over.
CAUSES OF RETIREMENT.											
Neurasthenia	4	0.82				1		1	2		
Bright's disease	3	.62					1			2	
Organic heart disease	2	.41			1					1	
Fractures, results of	2	.41		1			1				
Diabetes	1	.21							1		
Myelitis	1	.21							1		
Epilepsy	1	.21						1			
Deafness and otitis media	1	.21								1	
Penumonia, results of	1	.21					1				
Angiocholitis	1	.21					1				
Flat foot	1	.21				1					
RANK IN SERVICE.											
Colonel	1	.21								1	
Lieutenant colonel	3	.62						1	2		
Major	4	.82						1	1	2	
Captain	8	1.64			1	1	4		1	1	
First lieutenant	1	.21				1					
Second lieutenant	1	.21		1							
Number of retirements	18	3.69		1	1	2	4	2	4	4	
Number of officers in service	4,873		215	996	891	966	859	487	258	149	52
Ratio per 1,000 of each group				1.00	1.12	2.07	4.66	4.11	15.50	26.85	

There were 18 deaths, with a rate of 3.69 per 1,000, as compared with 23 deaths, with a rate of 4.76 in 1914.

The following table shows the causes of deaths of officers:

TABLE No. 2.—*Deaths of officers, United States Army, year 1915, by causes and rank, grouped by ages.*

	Total.		Ages of officers, quinquennial groups.								
	Number.	Ratio per 1,000 of all officers.	24 years and under.	25 to 29 years.	30 to 34 years.	35 to 39 years.	40 to 44 years.	45 to 49 years.	50 to 54 years.	55 to 59 years.	60 years and over.
CAUSES OF DEATH.											
By crushing (2 by fall of aeroplane, 1 by overturning auto, 1 by fall from horse in polo game)	4	0.82		1	2		1				
By suicide (2 by gunshot, 1 by hanging)	3	.62	1				1	1			
Organic heart disease (1 valvular, 1 hypertrophy and dilatation)	2	.41			1			1			

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TABLE No. 2.—*Deaths of officers, United States Army, year 1915, by causes and rank, grouped by ages*—Continued.

	Total.		Ages of officers, quinquennial groups.								
	Number.	Ratio per 1,000 of all officers.	24 years and under.	25 to 29 years.	30 to 34 years.	35 to 39 years.	40 to 44 years.	45 to 49 years.	50 to 54 years.	55 to 59 years.	60 years and over.
CAUSES OF DEATH—continued.											
Pneumonia	2	.41				2					
Pancreas, disease of the	2	.41					1			1	
Septicemia	1	.21									1
Carcinoma	1	.21						1			
Apoplexy, cerebral	1	.21					1				
Ulcer of stomach	1	.21						1			
Causes unknown	1	.21		1							
RANK IN SERVICE.											
Colonel	1	.21									1
Lieutenants colonel	2	.41						1		1	
Majors	4	.82				1		3			
Captains	5	1.03				1	4				
First lieutenants	4	.82		1	3						
Second lieutenants	2	.41	1	1							
Number of deaths	18	3.69	1	2	3	2	4	4		1	1
Number of officers in service	4,873		215	996	891	966	859	487	258	149	52
Death rate per 1,000 of each group			4.65	2.01	3.37	2.07	4.66	8.21		6.71	19.23

ENLISTED MEN.

The mean enlisted strength of the Army, American troops, white and colored, for the year 1915, as reported on the monthly sick reports of the Medical Department, was 93,262, and on the returns of The Adjutant General's Office, 94,729. The former represents the strength of the commands from which the sick returns were made and was used in calculating all ratios except those for deaths and discharges. As all deaths and discharges were reported, even of those absent from a command, the total strength as obtained from The Adjutant General was used in calculating ratios pertaining to those headings. There was an increase in strength over the year 1914, for which the medical returns showed 87,228 and The Adjutant General's Office, 88,133.

During the year 1915 American troops were stationed in the United States proper, the Philippine Islands, China, Alaska, Hawaii, and the Canal Zone. Native troops served in Porto Rico and the Philippine Islands. Statistics for the native troops, Porto Ricans and the Philippine Scouts, have been separately compiled, and when reference is made to the "Army" in this report the entire Army—officers, white, colored, and native enlisted men—is meant.

The size of garrisons in the Tropics, which constituted such a large percentage of our military forces, renders of more importance than formerly the general rates for the entire Army.

* * * * * * *

The admission and noneffective rates for the entire Army and for the troops in geographical divisions are readily comparable in the following tabulation:

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Admission and noneffective rates for entire Army and for troops in geographical divisions for years 1915 and 1914.

	Army (entire).	American troops of the Army (enlisted men).	Enlisted men serving in geographical divisions.							
			United States (at home).	Alaska.	Canal Zone.	Hawaii.	Philippine Islands.		China.	Porto Rico.
							American troops.	Native troops.		
Admission rates:										
1915	726.19	744.59	704.01	386.63	871.00	568.94	990.45	573.84	1,462.17	555.07
1914	660.45	665.83	629.84	422.95	955.22	523.27	877.69	714.14	1,080.23	629.30
Noneffective rates:										
1915	25.22	25.88	25.74	8.91	26.00	20.44	29.15	15.68	35.00	22.78
1914	23.78	24.02	23.37	10.52	37.30	18.75	30.58	20.30	29.68	22.52

The rates are slightly higher this year for the United States, Hawaii, China, and for the American troops in the Philippine Islands. A decided reduction in admission and noneffective rates occurred in Alaska, Canal Zone, and the Philippine Islands (native troops). The most marked reduction is noted in the admission rate for the Philippine Scouts and in the noneffective rate for the troops serving in Canal Zone.

ADMISSIONS TO SICK REPORT (AMERICAN TROOPS, ENLISTED MEN).

The admissions to sick report during the year 1915 show a slight increase, being 744.59 as compared with 665.83 in 1914. The admission rate for disease only is 610.32; in 1914 it was 539.46. * * * The diseases causing the highest admission rates were: Venereal, 107.71; diseases of the pharynx, 65.10; bronchitis, 35.17; influenza, 34.27; and diarrhea and enteritis, 31.51. The rates just given are for the American enlisted men of the Army and are given first for convenience of comparison. For the entire Army (all officers and enlisted men, including native troops) the rate is 726.19. For disease only the rate is 597.02. The rate for disease this year is slightly higher both among the American troops and for the entire Army. This is probably accounted for by the increased rates for venereal diseases.

For venereal diseases the rate for white troops was 105.81, a decrease over 1914; for colored, 136.30, which was slightly higher than for 1914. The rates in the Philippines for these troops were 177.08 and 258.76, respectively, which are higher for both races over the rates of 1914 in the Philippines, 174.79 and 233.76, respectively. These high rates are undoubtedly due to social conditions and indicate the necessity for a change of conditions before rates comparable to those obtaining in the United States may be expected. As the rate for 1912 for colored troops in the Philippines was 524.06, the highest recorded in the Army, the present rate is an index of the effectiveness of the measures instituted for improvement in this condition.

The case admission rate for external causes, American troops, enlisted men, was 134.27. In 1914 this rate was 126.37, and in 1913, 136.52. The principal causes for this rate were: Traumatism by fall, 36.16; injuries by animals, 12.33; traumatism by cutting or

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other piercing instruments, 10.57; traumatism by crushing, 6.66; burns, 4.12; and poisoning by food, 3.44.

NONEFFECTIVE RATES.

* * * The rate for disease and injury obtained for the total American troops, enlisted men, for the year 1915 was 25.88, as compared with 24.02 for 1914 and 24.33 per 1,000 in 1913. The rate for 1914 is the lowest recorded noneffective rate in the history of the Army. The highest noneffective rate on record was for the year 1898, when the total rate was 82.83 per 1,000, and the rate for diseases alone was 69.09.

The noneffective rate for all troops in the military service, or the entire Army, from all causes, was 25.22 (for disease alone, 20.85), which is slightly higher than that for 1914, but still much below the rates for any preceding year, except 1914, when the rate was 23.78. This rate during the past decade shows a steady reduction. In 1906 the noneffective rate was 47.86.

DISCHARGES FOR DISABILITY.

* * * * * * *

Soldiers stationed outside of the territorial limits of the United States are brought to the United States for discharge, except those belonging to the Porto Rican Regiment and the Philippine Scouts. They are, however, credited in the tabulated reports to the country in which the soldiers were serving when they became disabled, if their commands were there at date of discharge.

The present system requires that all soldiers certified by medical officers to be permanently incapacitated for the military service shall be critically examined by a board of two medical officers before being discharged. The reports of these boards go to the department headquarters from where discharges are ordered, except in the cases of soldiers at a recruit depot or general hospital, and the reports of boards on insane patients. In the latter circumstances the reports are sent to the Adjutant General of the Army, who directs the discharge or issues the order when insane are recommended to be transferred to the Government Hospital for the Insane, Washington, D. C.

The discharge rate for 1914 was lower than for any year since the Spanish-American War, being 12.99 as compared with 14.26 for the year 1915. In 1915 there were in the Army 1,351 men, American troops, discharged for disability, as compared with 1,145 during 1914. The corresponding rate for 1913 was 13.24. The rate for 1867 was 13 per 1,000, and the lowest rate from 1894–1898, inclusive, was that for 1895, the lowest on record in the Army, 9.15 per 1,000. The highest rate in any year for discharge for disability was in 1849, when the total rate for discharge was 76.7 per 1,000. The rate for the entire Army was 14.06 per 1,000.

The discharge rate for disease in 1915 (American troops) was 12.79 per 1,000, as compared with 11.39 in 1914, and that for external causes was 1.47 in 1915 as compared with 1.60 in 1914. The diseases causing the highest discharge rate in 1915 were as follows, absolute numbers and rates per 1,000 being given:

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Discharges, enlisted men (American troops), year 1915.

Disease.	Number.	Ratio.
Mental alienation	313	3.30
Tuberculosis (all)	170	1.79
Flat foot	118	1.25
Venereal disease	78	.82
Epilepsy	65	.69
Organic heart disease	47	.50

DEATHS FROM ALL CAUSES.

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For American troops, enlisted, the total rate for 1915 was 4.60 as compared with the corresponding rate of 4.45 for 1914 and 4.86 for 1913. The rate for 1915 is but little above the rate for 1914, which was the lowest on record in the Army. The highest death rate occurring in any year was in 1849, when the total rate for deaths was 80.2. The death rate for diseases was 2.60 in 1915; 2.36 in 1914, and 2.57 in 1913. The total number of deaths in 1915 was 436. The following diseases caused the highest number of deaths, absolute numbers and rates per 1,000 being given:

Deaths, enlisted men (American troops), year 1915.

Disease.	Number.	Ratio.
Tuberculosis	31	0.33
Pneumonia (lobar)	29	.31
Organic heart disease	22	.23
Measles	22	.23
Appendicitis	12	.13
Epidemic cerebrospinal meningitis	10	.11

The following were the principal causes of deaths, among officers and enlisted men, American troops, from external causes, with the number in each instance: Suicides, 53; homicides, 21; drowning, accidental, 34; traumatism by fall, 9; traumatism by other crushing, 29; traumatism by firearms, 12.

INFLUENCE OF STATION ON TROOPS.

Regarding the comparative healthfulness of the various countries in which American troops were serving during the year (Army transports being excluded), it will be noted that Alaska maintains the lowest admission and noneffective rates, 386.63 and 8.91 per 1,000, respectively; the Canal Zone the lowest death rate, 2.37 per 1,000; China had the lowest discharge rate, 9.74; China also had the highest noneffective rate, 35.00, as well as the highest admission rate, 1,462.17 per 1,000; the Philippine Islands the highest discharge rate, and the United States the highest death rate.

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TABLE NO. 3.—*Numerical view of the effect of disease and injury on United States troops at home and abroad in the year 1915, compared with corresponding data for the year 1914, by countries (enlisted men only).*

ABSOLUTE NUMBERS.

American troops (enlisted men).		Mean strength.	Admitted.			Discharged on certificate of disability.			Died.			Total losses.			Noneffective from sickness.	
			Total.	Disease.	Injury.	Total.	Disease.	Injury.	Total.	Disease.	Injury.	Total.	Disease.	Injury.	Days treated.	Constantly noneffective.
United States	1915	63,725	44,863	35,972	8,891	879	771	108	349	193	156	1,228	964	264	598,677	1,640.21
	1914	61,362	38,648	30,609	8,039	917	794	123	298	156	142	1,215	950	265	523,307	1,433.72
Alaska	1915	763	295	227	68	9	9	.....	2	1	1	11	10	1	2,482	6.80
	1914	915	387	288	99	8	7	1	8	3	5	16	10	6	3,515	9.63
Philippine Islands	1915	11,834	11,721	10,308	1,413	276	262	14	34	18	16	310	280	30	125,910	344.96
	1914	10,253	8,999	7,655	1,344	112	108	4	40	21	19	152	129	23	114,455	313.58
China	1915	1,335	1,952	1,802	150	13	12	1	6	4	2	19	16	3	17,054	46.72
	1914	1,047	1,131	1,012	119	4	4	.....	6	5	1	10	9	1	11,344	31.08
Hawaii	1915	8,572	4,877	3,779	1,098	97	87	10	27	20	7	124	107	17	63,939	175.17
	1914	7,971	4,171	3,204	967	72	63	9	13	9	4	85	72	13	54,544	149.44
Canal Zone	1915	5,721	4,983	4,114	869	77	71	6	14	7	7	91	78	13	54,290	148.74
	1914	2,010	1,920	1,678	242	23	19	4	7	1	6	30	20	10	27,367	74.98
Army transports	1915	1,312	751	718	33	.....	.....	.....	4	3	1	4	3	1	18,471	50.61
	1914	1,404	681	656	25	1	1	.....	6	6	.....	7	7	.....	13,761	37.70
Total	1915	93,262	69,442	56,920	12,522	1,351	1,212	139	436	246	190	1,787	1,458	329	880,823	2,413.21
	1914	87,228	58,079	47,056	11,023	1,145	1,004	141	392	208	184	1,537	1,212	325	764,883	2,095.57
Regular Army, American troops from 1905 to 1914		69,741	680,899	554,775	126,124	11,926	10,669	1,257	3,667	2,025	1,642	15,593	12,694	2,899	9,261,927	2,536.12
Porto Rican troops	1915	681	378	340	38	5	5	.....	3	2	1	8	7	1	5,662	15.51
	1914	669	421	367	54	6	6	.....	3	.....	3	9	6	3	5,499	15.07
Philippine Scouts	1915	5,505	3,159	2,657	502	63	58	5	14	9	5	77	67	10	31,506	86.31
	1914	5,020	3,585	3,104	481	48	44	4	16	11	5	64	55	9	37,189	101.89

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PROPORTIONATE NUMBERS (ENLISTED MEN ONLY).

[Ratio per 1,000 of mean strength.]

American troops (enlisted men.)		Mean strength.	Admitted.			Discharged on certificate of disability.			Died.			Total losses.			Constantly noneffective.	Days treated.	
			Total.	Disease.	Injury.	Total.	Disease.	Injury.	Total.	Disease.	Injury.	Total.	Disease.	Injury.		Each soldier.	Each case.
United States	1915	63,725	704.01	564.49	139.52	13.60	11.93	1.67	5.40	2.99	2.41	19.00	14.92	4.08	25.74	9.39	13.34
	1914	61,362	629.84	498.83	131.01	14.82	12.83	1.99	4.82	2.52	2.30	19.64	15.35	4.29	23.37	8.53	13.54
Alaska	1915	763	386.63	297.51	89.12	11.80	11.80	.....	2.62	1.31	1.31	14.42	13.11	1.31	8.91	3.25	8.41
	1914	915	422.95	314.75	108.20	8.74	7.65	1.09	8.74	3.28	5.46	17.48	10.93	6.55	10.52	3.84	9.08
Philippine Islands	1915	11,834	990.45	871.05	119.40	23.22	22.04	1.18	2.86	1.51	1.35	26.08	23.55	2.53	29.15	10.64	10.74
	1914	10,253	877.69	746.61	131.08	10.62	10.24	.38	3.79	1.99	1.80	14.41	12.23	2.18	30.58	11.15	12.72
China	1915	1,335	1,462.17	1,349.81	112.36	9.74	8.99	.75	4.49	3.00	1.50	14.23	11.99	2.25	35.00	12.77	8.74
	1914	1,047	1,080.23	966.57	113.66	3.82	3.82	.....	5.73	4.78	.96	9.55	8.60	.96	29.68	10.83	10.03
Hawaii	1915	8,572	568.94	440.85	128.09	10.92	9.79	1.13	3.04	2.25	.79	13.96	12.04	1.92	20.44	7.46	13.11
	1914	7,971	523.27	401.96	121.31	9.02	7.89	1.13	1.63	1.13	.50	10.65	9.02	1.63	18.75	6.84	13.08
Canal Zone	1915	5,721	871.00	719.10	151.90	13.03	12.01	1.02	2.37	1.18	1.18	15.40	13.19	2.20	26.00	9.49	10.89
	1914	2,010	955.22	834.83	120.40	10.94	9.04	1.90	3.33	.48	2.85	14.27	9.52	4.75	37.30	13.62	14.25
Army transports	1915	1,312	572.41	547.26	25.15	.....	.....	.....	3.05	2.29	.76	3.05	2.29	.76	38.57	14.08	24.59
	1914	1,404	485.04	467.24	17.81	.71	.71	.....	4.27	4.27	.....	4.98	4.98	.....	26.85	9.80	20.21
Total	1915	93,262	744.59	610.32	134.27	14.26	12.79	1.47	4.60	2.60	2.01	18.86	15.39	3.48	25.88	9.44	12.68
	1914	87,228	665.83	539.46	126.37	12.99	11.39	1.60	4.45	2.36	2.09	17.44	13.75	3.69	24.02	8.77	13.17
Regular Army, American troops from 1905 to 1914		69,741	976.32	795.47	180.85	16.81	15.04	1.77	5.17	2.85	2.32	21.98	17.89	4.09	36.36	13.28	13.60
Porto Rican troops	1915	681	555.07	499.27	55.80	7.34	7.34	.....	4.41	2.94	1.47	11.75	10.28	1.47	22.78	8.31	14.98
	1914	669	629.30	548.58	80.72	8.97	8.97	.....	4.48	.....	4.48	13.45	8.97	4.48	22.52	8.22	13.06
Philippine Scouts	1915	5,505	573.84	482.65	91.19	11.44	10.53	.91	2.54	1.63	.91	13.98	12.16	1.82	15.68	5.72	9.97
	1914	5,020	714.14	618.33	95.82	9.56	8.76	.80	3.19	2.19	1.00	12.75	10.95	1.80	20.30	7.41	10.37

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TABLE NO. 3A.—*Numerical view of the effect of disease and injury on the Army, serving at home and abroad, in the year 1915, compared with corresponding data for the year 1914, by countries (officers and enlisted men, Porto Ricans and Philippine Scouts).*

PROPORTIONATE NUMBERS (ENTIRE ARMY).

[Ratios per 1,000 of mean strength.]

The Army, officers and enlisted men, including Porto Ricans and Philippine Scouts.		Mean strength.	Admitted.			Discharged on certificate of disability.			Died.			Total losses.			Noneffective from sickness.		
			Total.	Disease.	Injury.	Total.	Disease.	Injury.	Total.	Disease.	Injury.	Total.	Disease.	Injury.	Constantly noneffective.	Days treated.	
																Each soldier.	Each case.
United States	1915	66,789	696.04	559.43	136.61	13.60	11.93	1.67	5.30	2.95	2.35	18.90	14.88	4.02	25.77	9.41	13.51
	1914	64,357	622.28	493.90	128.38	14.82	12.83	1.99	4.87	2.56	2.31	19.69	15.39	4.30	23.41	8.54	13.73
Alaska	1915	787	378.65	292.24	86.40	11.80	11.80	.....	2.54	1.27	1.27	14.34	13.07	1.27	8.71	3.18	8.40
	1914	958	408.14	303.76	104.38	8.74	7.65	1.09	8.35	3.13	5.22	17.09	10.78	6.31	10.17	3.71	9.09
Philippine Islands	1915	18,005	853.65	743.46	110.19	19.49	18.40	1.09	2.77	1.61	1.16	22.26	20.01	2.25	24.72	9.02	10.57
	1914	15,943	818.04	699.36	118.67	10.28	9.76	.51	3.50	2.03	1.47	13.78	11.79	1.98	27.20	9.93	12.14
China	1915	1,378	1,438.32	1,328.74	109.58	9.74	8.99	.75	4.35	2.90	1.45	14.09	11.89	2.20	34.45	12.57	8.74
	1914	1,091	1,063.24	949.58	113.66	3.82	3.82	.....	5.50	4.58	.92	9.32	8.40	.92	28.88	10.54	9.92
Hawaii	1915	8,876	568.50	441.30	127.20	10.92	9.79	1.13	3.26	2.17	1.09	14.18	11.96	2.22	20.24	7.39	12.99
	1914	8,268	523.58	402.39	121.19	9.02	7.89	1.13	1.81	1.21	.60	10.83	9.10	1.73	18.69	6.82	13.03
Canal Zone	1915	5,903	859.22	709.81	149.41	13.03	12.01	1.02	2.46	1.31	1.15	15.49	13.32	2.17	25.63	9.35	10.89
	1914	2,076	938.35	818.88	119.46	10.94	9.04	1.90	3.21	.46	2.75	14.15	9.50	4.65	36.45	13.30	14.18
Porto Ricans	1915	719	552.16	496.52	55.63	7.34	7.34	.....	4.17	2.78	1.39	11.51	10.12	1.39	22.36	8.16	14.78
	1914	707	615.28	534.65	80.62	8.97	8.97	.....	4.24	.....	4.24	13.21	8.97	4.24	21.64	7.90	12.84
Transports	1915	1,385	545.85	520.58	25.27	.....	.....	.....	2.89	2.17	.72	2.89	2.17	.72	36.32	13.49	24.71
	1914	1,476	465.45	448.51	16.94	.71	.71	.....	4.07	4.07	.....	4.78	4.78	.....	26.47	9.66	20.76
The Army	1915	103,842	726.19	597.02	129.16	14.06	12.63	1.43	4.45	2.53	1.92	18.51	15.16	3.35	25.22	9.20	12.67
	1914	97,278	660.45	538.09	122.36	12.78	11.23	1.55	4.40	2.35	2.05	17.18	13.58	3.60	23.78	8.68	13.14

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INFLUENCE OF ARMS OF SERVICE.

The admission rate for disease was highest for the Field Artillery, being 764.57, while the Ordnance Corps had the lowest, 426.21 per 1,000.

The death rate was highest in the Ordnance Corps, 6.78, and lowest in the Field Artillery, 1.79; the Hospital Corps being next with 2.02 per 1,000.

TABLE NO. 4.—*Influence of disease on enlisted American troops of the Army, by arms of service, for the year 1915.*

	Mean strength.	Admitted.	Discharged on certificate of disability.	Died.	Constantly noneffective.	Ratio per 1,000 of mean strength.			
						Admitted.	Discharged on certificate of disability.	Died.	Constantly noneffective.
Infantry	34,090	22,535	461	75	781.50	661.04	13.31	2.17	22.93
Cavalry	14,408	8,361	149	30	284.04	580.30	10.18	2.05	19.72
Coast Artillery	18,963	10,194	273	49	392.31	537.57	14.17	2.54	20.16
Field Artillery	5,509	4,212	76	10	133.28	764.57	13.60	1.79	24.19
Engineers	1,877	1,282	21	7	57.58	683.00	11.01	3.67	30.68
Ordnance	725	309	1	5	9.69	426.21	1.36	6.78	13.37
Signal Corps	1,364	594	10	5	23.83	435.48	7.21	3.61	17.47
Hospital Corps	3,891	2,135	59	8	74.77	548.70	14.93	2.02	19.22
Others	12,435	7,298	162	57	245.73	586.89	12.83	4.51	19.76
Total	93,262	56,920	1,212	246	1,992.74	610.32	12.79	2.60	21.37

The following table shows the relative frequency of the occurrence of the more important diseases for the various arms of service; figure 1 indicating the highest ratio and figure 8 the lowest in each case for each arm:

TABLE NO. 5.—*Relative frequency of occurrence of certain important diseases, by arms of service, in the Army, among American troops, enlisted men, year 1915.*

Arms of service.	Most important diseases.											
	Venereal.	Tonsilitis and pharyngitis.	Diarrhea and enteritis.	Malaria.	Bronchitis.	Alcoholism.	Rheumatism (articular).	Dysentery.	Tuberculosis.	Typhoid fever.	Pneumonia (lobar).	Injuries.
Infantry	1	2	4	3	2	6	3	7	4	2	3	5
Cavalry	4	3	3	6	3	7	5	4	7	1	2	1
Coast Artillery	6	4	8	5	4	5	2	8	6	.....	4	4
Field Artillery	2	1	1	2	1	8	7	3	5	.....	1	2
Engineers	3	6	2	1	5	3	6	6	2	.....	5	3
Ordnance	8	8	7	8	6	4	4	1	8	.....	6	7
Signal Corps	5	7	6	7	8	2	8	5	3	.....	.....	6
Hospital Corps	7	5	5	4	7	1	1	2	1	.....	7	8

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The following tabulation exhibits the admission and noneffective rates for the different races for the principal diseases causing the greatest noneefficiency:

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Diseases causing the greatest amount of noneefficiency in the Army, arranged in accordance therewith, together with their admission rates, in ratios per 1,000 of mean strength.

	Army, total enlisted.		White.		Colored.		Porto Ricans.		Philippine Scouts.	
	Noneffective rates.	Admission rates.	Noneffective rates.	Admission rates.	Noneffective rates.	Admission rates.	Noneffective rates.	Admission rates.	Noneffective rates.	Admission rates.
Venereal diseases	4.62	103.52	4.68	105.81	6.25	136.30	4.82	89.57	1.96	34.33
Tuberculosis	1.72	3.56	1.74	3.44	2.09	4.65	.19	1.47	.58	4.54
Mental alienation	.85	3.74	.89	3.88	1.04	3.27	.28	1.47	.16	2.36
Bronchitis	.62	34.56	.63	35.06	.65	36.87	.....	.....	.48	28.52
Tonsillitis, acute follicular	.59	42.44	.67	46.48	.34	23.60	.06	2.94	.05	3.09
Appendicitis	.59	8.24	.63	8.84	.65	7.24	.....	.....	.03	.73
Malaria	.54	25.74	.50	23.60	.17	8.44	.35	8.81	1.54	80.11
Mumps	.46	9.80	.47	10.30	.54	9.82	.....	.....	.17	3.09
Influenza	.44	32.25	.47	35.06	.31	22.40	.10	2.94	.04	1.63
Diarrhea and enteritis	.41	31.76	.42	31.87	.29	26.19	.23	17.62	.45	37.60
Measles	.40	6.45	.45	7.22	.01	.34	.....	.....	.07	1.45
Articular rheumatism, acute and chronic	.38	5.52	.41	5.92	.28	4.13	.41	4.41	.03	.54
Hernia	.36	3.59	.38	3.89	.26	2.24	.....	.....	.08	.73

It will be seen from the above tabulation that the white troops have next to the highest rate for venereal diseases, 105.81 per 1,000; the colored troops the highest, with 136.30, while the native troops (Porto Ricans and Philippine Scouts) had the lowest rate, 89.57 and 34.33, respectively.

INFLUENCE OF RACE.

[See Tables 67 and 75.]

Table No. 67 shows that the white troops had the highest admission rate, while the colored troops have the highest death, discharge, and noneffective rates. Porto Rico had the lowest admission and discharge rate, and the Philippine Scouts the lowest death and noneffective rates. The admission rates were: White troops, 745.17; colored, 735.87; Philippine Scouts, 573.84; and Porto Ricans, 555.07.

The constantly noneffective rates were: Colored, 28.46; white, 25.70; Porto Ricans, 22.78; and Philippine Scouts, 15.68 per 1,000.

The discharge rates were: Colored, 15.85; white, 14.16; Philippine Scouts, 11.44; and the Porto Ricans, 7.34 per 1,000.

The death rates were: Colored, 5.51; white, 4.54; Porto Ricans, 4.41; and the Philippine Scouts, 2.54 per 1,000.

The rates for total losses were: Colored, 21.36; white, 18.70; Philippine Scouts, 13.98; and Porto Rican troops, 13.45 per 1,000.

The average number of days lost for each case treated was: Porto Ricans, 14.98; colored, 14.12; white, 12.59; and Philippine Scouts, 9.97 per 1,000.

COMPARISON WITH FOREIGN ARMIES.

As in previous years it has been customary to make an effort to compare the health conditions in the United States with the same conditions in the armies of Great Britain, the continental powers, and Japan. Owing to the unusual conditions which have existed throughout the calendar year 1915 in Europe, no effort at comparison is made in this report.

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SURGICAL OPERATIONS.

Table No. 66 shows the principal surgical operations performed by medical officers upon the personnel of the Army. Operations upon families of officers and enlisted men and other civilians who are entitled to treatment at Army hospitals at the various posts are not included. During the year 1915 there were 6,323 operations performed, of which 6,244 were successful, 36 partially successful, and 15 failures; 28 deaths resulted. Of the anesthetics used, ether was more prominent, being used in 2,459 cases, chloroform in 135, local anesthesia in 2,865, chloroform and ether or gas in 63, and other general anesthetics in 7 cases. Six hundred and eleven appendectomies were performed, of which 15 were gangrenous, 6 resulting in death; 289 herniotomies and 14 operations for goiter.

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SANITATION, UNITED STATES.

The general sanitary conditions throughout the United States for the Army have been very satisfactory. Such defects as were reported were of a minor character and were promptly remedied through the cooperation of those in authority. At several of the newer posts in the Canal Zone complaints have reached the office in regard to the absence of screening against mosquitoes. Unfortunately it has not been possible to make corrections in all cases through a lack of appropriation of funds.

The department surgeon, Eastern Department, under the subject of hospital treatment in the Canal Zone, remarks:

I desire to invite attention to the unsatisfactory condition in the matter of hospital treatment in the Canal Zone for those in the military service, and more particularly for the dependent members of their families, who are accorded the privilege of hospital treatment, subject to a charge for subsistence and medicines, everywhere else in the service where troops are serving and the facilities exist, except in this district. Aside from the hardship just mentioned, I consider the present arrangement, whereby all the sick of the service are sent to the Canal Zone hospitals except those requiring dispensary treatment only, and by which the medical officers there on duty are deprived in large part of the care of the sick and in whole of the professional work and administration of hospitals, as tending to the deterioration of the efficiency and morale of the medical officers concerned. In my opinion, the restoration to the Medical Corps of its proper function of the care and control of all military sick, by the establishment of military hospitals in the Canal Zone on exactly the same basis as elsewhere in the Army, is the most important medico-military matter in this department.

On the subject of sanitary inspections, he further remarks:

No sanitary inspections were made during the year. The War Department under date of July 8, 1915, decided that "Such general inspections except for troops in the field in large camps should be made as a rule by officers of the Inspector General's Department, that inspections by sanitary inspectors should be limited to special cases requiring unusually detailed and careful inspection of a more or less technical character," etc. A great part of the work of the sanitary inspector is of a technical nature, and no other inspector is capable of giving such expert information to the department commander or the Surgeon General, who are by these inspections kept fully informed as to the proficiency of the personnel, care of the sick, sanitary conditions and health of the troops, not to speak of the inestimable disciplinary value that accrues to the medical personnel of the various posts from a knowledge that searching technical inspections will be made each year of all things pertaining to the Medical Department by an official sanitary inspector. As a matter of fact, the sanitary inspector was called upon to take over the inspections previously made by the department surgeon, who was required by regulations, ever since the Civil War, to inspect every post in his department at least once a year.

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Further he states:

In the matter of winter armory inspections by medical officers, the fact that there have been assigned to districts five medical inspector-instructors, has improved the situation very much, so far as the post surgeons are concerned, it having been necessary to recommend very few details for this duty. But in regard to the summer encampments, where the services of a medical inspector-instructor are required for every organization which has attached to it sanitary personnel, the department was put to it to find officers available at the times and places required. In the vicinity of Boston, last summer, there were six different encampments of the Massachusetts Volunteer Militia at different places at the same time. The encampment of United States troops at Plattsburg, to which students and business men were invited, lasting, as it did, more than three months, required the services of a number of medical officers in addition to those serving at Plattsburg Barracks. The situation was such that it was necessary to recall the sanitary inspector from leave and send him up to Plattsburg Barracks to administer the hospital at that post.

In commenting upon the sanitary conditions in that department during the year, the department surgeon, Western Department, states:

The sanitary conditions throughout the department for the year were very good. A few defects were noted on the monthly reports, and where possible were promptly corrected. The following is deemed worthy of special note:

The water supply for the Presidio of San Francisco, Fort Winfield Scott, the Letterman General Hospital, Fort Mason, and the transport docks, is obtained from a small stream that arises from springs on the Presidio Reservation and flows a short course near the southern boundary of the reservation to the sea. There are many buildings just outside the reservation and the slope of the creek is abrupt and such that contamination by drainage from the adjacent streets and buildings and leaking sewers is always a possibility. At the pumping station the water is subjected to rapid mechanical filtration, with the addition of a coagulant, and the laboratory findings of the filtered water have been satisfactory; but the dam is wooden and in bad order and the sediment tank is too small to perform its function. Recommendations have been made that a concrete dam and two sediment tanks be built, and the item has been included in the 1917 estimate to Congress. As the large number supplied with water from this plant, and the liability of the supply to contamination makes it important that the filtration plant should be kept in the highest state of efficiency, it is believed that the work recommended is of considerable importance.

The surgeon at Vancouver Barracks reported the water supply endangered by a cesspool in use within 75 yards of the wells. A requisition for the construction of a septic tank for the disposal of this sewage was forwarded to the War Department "approval recommended" under date of November 30, 1915.

The surgeon, Presidio of Monterey, Cal., recommended in the sanitary report for December, 1914, the "Extension of existing barrack buildings to provide sufficient squad rooms to give at least 60 square feet floor space to every man; the installation of an adequate heating and ventilating system in all barracks; the installation of modern plumbing (water-closets and urinals) and adequate hot water system for bath rooms; connection of barracks to bath rooms by covered passage." The foregoing has been the subject of considerable correspondence, and the present status is that estimates for this construction (as modified in the office of the Quartermaster General) were to be included in the estimate for the fiscal year 1917.

The department surgeon, Central Department, in his annual report for the calendar year 1915, states:

All conditions were cheerfully met and the duties required of the medical officers were satisfactorily performed, no complaint being received as to unsatisfactory or inadequate service. The service of the medical officers assigned as locum tenens at posts was also satisfactory.

Speaking of the venereal situation in the department, the surgeon at Fort Leavenworth is quoted as follows:

The venereal rate has been somewhat above the average for the Army. Care has been taken to make every provision for the convenience, comfort, and privacy of the men who come to the hospital under the provisions of G. O. 17, W. D., 1912, for the cleansing and disinfecting treatment prescribed. A man of the Hospital Corps detachment is on duty at all hours of the day and night to supervise the procedure.

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The medical officers also take occasion to point out to the men the importance of this sanitary precaution for those who will expose themselves.

A wide difference exists between the various organizations as regards the carrying out of the provisions of G. O. 17, W. D., 1912, and it is believed that this has direct relation to the amount of interest which the company officers take in the matter. The success of some officers in educating their men to take this sanitary precaution shows that all could achieve a reasonable amount of success by earnest and persistent efforts. It is believed that in the case of company officers who fail to attain a reasonable amount of success in the matter the fact should be noted on their efficiency reports by commanding officers under the heading of remarks.

Regarding sanitation, the department surgeon adds:

The posts in this department, all with garrisons depleted by the departure of the Second Division to the southern border, nearly three years since, have, as a rule, all been caring for themselves, with more or less difficulty, owing to their shortage of personnel.

The annual reports concerning sanitation from all posts are usually brief, expressing satisfaction, and there is no reason to suppose that there are any sanitary questions in the department of real urgency.

The following conditions, however, have existed for several years, during which complaints have come from Forts Leavenworth and Brady of a smoke nuisance from the use of soft coal, with recommendations for the substitution of hard coal. The greatly increased expense of such a change has, however, militated against its adoption.

At Fort Russell the completion of the new post city water-supply plant is expected within a few weeks, which will permit the use of city water with confidence. This will apparently terminate an agitation for pure water lasting for years.

At Fort Meade the damming up of the post sewer at terminus into Bear Butte Creek has for years prompted recommendations for the construction of a septic tank.

The sanitary conditions, as reported by the department surgeon, Southern Department, have been generally good. The men are well protected from weather. Suitable buildings were erected for the kitchens and mess halls and they have been effectively floored and screened. Latrines are boxed and fly proof. Lime and flytraps are supplied latrines. Kitchen wastes and manure are usually carted away daily by outlying farmers. Habits of men are, as a rule, very good. Food supply and preparation are satisfactory.

In speaking of the preventable diseases with which they have to contend on the southern border, the department surgeon remarks:

War and famine have paved the way for typhoid fever, smallpox, typhus fever, and influenza in severe forms, and these epidemic diseases have all prevailed in Mexico and among the refugees who have flocked to this side of the border. The fact that smallpox has been limited to two cases, typhoid fever to two, and epidemic meningitis to one show how splendidly under control are these diseases, which formerly caused such morbidity and mortality.

Further, he adds:

The prevailing diseases have been gastrointestinal, bronchial, and venereal. Acute follicular tonsillitis and influenza have prevailed extensively during the colder months, especially at Douglas, Ariz. They seem connected, in their mode of spread, with poor ventilation in the tents of the men and in the various moving-picture shows frequented by the commands. Improvement has followed a greater care in seeing that the tents are properly aired during the day and ventilated at night. The proprietors of the various picture theaters have likewise cooperated to improve their ventilation.

There were relatively a large number of cases of diphtheria. Twelve of these cases occurred at Fort McIntosh from January 6 to May 3. The usual methods of isolation, careful bacteriological examinations of throats, and immunization of contacts with antitoxin kept the disease well in check. The majority of cases seem to have been contracted in Laredo, where an epidemic prevailed during the spring.

In explanation of the high rate of venereal diseases it is stated:

It is partly due to the soldiers obtaining 24-hour passes and failing to take the prophylactic treatment soon enough after exposure to be of much value. For such as these, and especially for the use of troops serving on the border and on detached

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service, where the usual prophylactic can not be given, it is recommended that the prophylactic tubes formerly authorized be again issued.

Continuing on this subject of venereal disease, the following is quoted from the report of the surgeon, Fourth Infantry, Brownsville, Tex.:

At Brownsville the usual factors are: (*a*) The small number of prostitutes present in a small town; (*b*) the exceedingly low grade of those who are here. Cause: (*a*) Operates by the whole number of women becoming more rapidly diseased than in a larger town and increasing the chances of contagion. Light is shed as to the grade of these women by the fact that pediculosis pubis is exceedingly prevalent in the command, as many as eight cases having been found in one company at the semimonthly physical inspection. The large majority of these women are Mexican-Indians, which fact needs no further comment as to their hygienic condition.

The large number of prophylactic treatments given indicates a general knowledge of the importance of the measures and would give ground to expect a small venereal rate were it not for the well-known means of circumventing the order or of partial compliance that is sufficient to avoid legal penalties but not sufficient for therapeutic benefit. All cases of venereal exposure without venereal prophylaxis, where the facts could be established, have been tried by summary court-martial. There have been 17 convictions for this offense during the year.

The surgeon, Twelfth Infantry, Camp Stephen Little, Nogales, Ariz., contributes the following on the subject:

This station can point with pride to the unusually low venereal rate for the year, which could only have been secured through the system of venereal prophylaxis in use. During the year there were recorded 5,401 prophylactic treatments, an average of 450 per month. These figures show the great extent to which the men have been exposed to venereal disease. Prostitution in this vicinity is not regulated and most of the prostitutes are Mexican women who loiter in the vicinity of the camp. Undoubtedly a very favorable influence in reducing the number of verenecal infections has been the absence of saloons in the town of Nogales. A sober soldier after exposure to venereal disease resorts to the prophylaxis and properly carries out the treatment, but a venery associated with drunkenness is a serious menace to an individual's health and undoubtedly is the cause of so-called failures of our venereal prophylaxis.

The following, quoted from the report of the surgeon, Eighteenth Infantry, Douglas, Ariz., has the approval of the department surgeon:

When cases are transferred to other hospitals their subsequent history under present methods is unknown to the medical officers who cared for patients originally. It would increase the interest in following cases, and be very instructive, if some method could be instituted of reporting changes in diagnosis, complications, and final disposition of these patients to the officers who have formerly treated them.

The surgeon, Fort Sam Houston, Tex., in his report to the department surgeon, submits the following on "Patients refusing operations:"

The service on the border is not attractive, and as a result many men take advantage of every opportunity to leave the Army by discharge. In my opinion this accounts for the many refusals to undergo operations to render the patient fit for the military service. I am keeping a list of these refusals, and at the proper time will forward it to The Adjutant General of the Army, with remarks, with a view of having the present privilege of refusing operations revised.

The surgeon, Sixth Cavalry, which was stationed at Harlingen, Tex., reports the following:

Skin and subcutaneous affections.—There has been a great number of sores, boils, abscesses, and ulcers with adenitis and lymphadenitis from infection. The prevalence with which slight scratches became spreading sores, which resist or at least require treatment over a long period, leads one to consider infection from some parasitic fungi. Abrasions from thorns, as well as bites from sand fleas and ticks, common to this section, could easily promote this infection. Tropical ulcers are in some cases simulated.

Intestinal disturbances.—Quite a number of cases of acute dysentery have been seen. These vary in severity, but have run a fairly similar course, characterized by fever and rapid onset and diarrhea of varying severity, but often with blood and mucus. They have responded rather quickly to treatment, and it is believed to be a bacillary dysentery. No amœbic cases have been observed, except one with a past history

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Malaria and fevers undiagnosed.—There have been a few cases of malaria of the type plasmodium vivax diagnosed, and more called malaria, but the disadvantages of not having a microscope, and the habit of the corps men on duty with the troops on the river of giving quinine has precluded diagnosis in these cases, but I believe malarial infection in this section to be a negligible factor. There have been, however, quite a number of cases of fever type undetermined. These were characterized by rapid onset, with or without diarrhea, quite high and continuous fever lasting three or four days, and rapid recovery. With the coming of cooler weather and fewer insects, this affection seems to have lessened or disappeared.

Sanitation.—The troops at the outlying stations are for the most part in tents and have been supplied lumber for floors and kitchens. They depend upon such water as the community affords, as wells, rivers, or small lakes, and each troop is supplied with a Lyster bag. The remainder of the regiment at Harlingen is well camped and supplied with water from the town waterworks, and with electric lights. Tents are floored and kitchens screened. Deep-pit latrines are used and are satisfactory. Flies were very numerous during the warm weather, but few remained after December 1, 1915. Mosquitoes at no time have been troublesome, and these mostly of the culex type. It has, however, been very dry since the troops arrived and all standing water in the vicinity of camp has been oiled. The climate since October 1 has been ideal, and it is believed the men are reasonably content. The splendid shooting has afforded the chief amusement. The outlying troops have depended largely upon Hospital Corps men for medical attendance, and the necessity of reliable men for the corps has been most apparent, and that they should have sufficient training. An automobile ambulance was asked for shortly after the troops arrived in Harlingen, and was approved but never supplied. It would have been most useful, and the scattered troops could have been much more easily and effectively cared for. The ambulance company has supplied service only within the town, whereas an automobile ambulance could have collected the sick and wounded over most of the district.

CAMP SANITATION.

This subject has been one of unusual importance and interest during the past year.

The camps of instruction for civilians at Plattsburg and elsewhere, the assembling of the State troops in camps of mobilization, and the muster in to the Federal service of 140,000 National Guard in June, 1916, have necessitated a thorough consideration of all measures relating to the care of troops in the field.

The following circular relating to camp sanitation and personal hygiene, prepared by the Surgeon General of the Army, was early sent to The Adjutant General with a view to its publication for the information and guidance of all concerned.

With slight modification this circular has been approved and issued as a general sanitary order of the War Department.

As will be noted, this order embodies largely those methods which the experience of the regular troops in their camps at Vera Cruz, Galveston, Texas City, San Antonio, and other places on the border and in Mexico proved to be most valuable and satisfactory for field conditions.

The following sanitary regulations are published for the guidance of all concerned and should be strictly enforced:

1. *Chief surgeon.*—The chief or division surgeon is charged with the general conduct and supervision of the Medical Department in the performance of its duties, and will make such assignment of personnel as may be required.

2. *Sanitary inspector.*—The sanitary inspector is charged especially with the supervision of the sanitation of the camp. It is the duty of commanders to remedy defects reported to them by the inspector.

3. *Water supply.*—Precaution must be taken to prevent contamination of the camp water supply by keeping all containers scrupulously clean and protected from dust and other sources of infection.

An appliance designed by Maj. William J. Lyster, Medical Corps, and carried on the supply table as "Water bag, field, sterilizing," consists of a canvas bag of specially woven flax, 20 inches in diameter and 28 inches in length, sewn to a flat galvanized-

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iron ring, hinged so it folds at one diameter. Spliced at four equi-distant points on the ring are two crossed pieces of hemp rope, enabling the bag to be suspended on any convenient support capable of holding the weight of the bag when filled with water, which is about 330 pounds. Five nickel spring faucets are placed at equal spaces about the bottom edge of the bag. The neck of these faucets is small enough to enter a canteen which can be filled in 10 seconds. The self-closing faucets prevent wastage.

The purpose of the bag is not for transporting water, but to provide a stationary receptacle in which water can be held long enough to sterilize and then distribute it. The empty bag weighs from 7 to 7½ pounds and folds into a convenient package for carriage in the field. It thus can be carried by the soldier on the infantry pack when other transportation is wanting.

After the bag is suspended and filled with water, it is sterilized by the addition of a small amount of hypochlorite of calcium. This is carried in measured doses, sealed in glass tubes. A package of 60 of these tubes weighs 10 ounces and measures 7½ by 3½ by 4¼ inches. Packed in corrugated paper it will stand rough usage.

The tubes themselves are 3 inches in length by three-fifths of an inch in diameter and are marked with a file enabling them to be easily broken in the fingers without fragments. They contain from 14 to 15 grains of calcium hypochlorite. This chemical contains from 30 to 32 per cent chlorin, which forms in the water hypochlorous acid and results in sterilizing the water. The process is one of oxidation. In the strength used waters highly infected are rendered safe. Of course, in such strengths (1–500,000) grossly polluted water such as sewage will not be rendered safe. Water ordinarily used will be entirely safe after being so treated. As the chemical acts more efficiently in clear waters, a filter-cloth, to be fastened over the opening of the bag and weighing 1 ounce, is provided, or water may be strained through a blanket. The bag is filled after it is in place. Suspended matter, such as clay, is largely removed and not left to interfere with the action of the chlorin.

Comprehensive experiments demonstrate the bacteriological efficiency of the appliance. The organisms causing typhoid fever, the dysenteries, including amœbic or tropical dysentery, and ciliates are promptly destroyed. Even in the vegetative form amœbæ are killed in 15 minutes—ordinarily 5 to 10 minutes suffices after the addition of the powder to render the water safe to drink. Exposure of 30 minutes has been found to destroy all amœbæ and ciliates under most severe conditions in a test.

4. *Disposal of garbage.*—For detachments or companies in camps, or in isolated locations where other means are not available, the incinerator shall be installed.

If wood is plentiful and medium-sized stones can be obtained, both liquid and solid refuse can be disposed of by using incinerators improvised for each company as follows:

A pit is dug about 5 feet long, 2½ feet wide, and 6 inches deep at one end and 12 at the other; the excavated earth is banked around the pit and the latter is then filled with stones on which a fire is built; when the stones have become heated liquid refuse is poured into the pit (shallow end) where it gradually evaporates; solid matter is burned on the fire.

The efficiency of this type of incinerator depends largely upon the fact that porous earth absorbs a very large part of the liquid slops, but it is not considered practicable to destroy the usual accumulation of slops every day without using an extravagant amount of fuel.

A type of incinerator having a fire bed of rock 1 foot deep will not permit the heat from the fire to penetrate beyond that depth. The rock wall on three sides of the fire bed absorbs much heat that otherwise might be dissipated into space, which increases the evaporating capacity of the incinerator enormously, and requires a comparatively very small amount of fuel. Incinerators built of large rocks are considered to be most efficient.

About one-sixth of a cord of wood per day per company is considered more than sufficient for the destruction of all slops and garbage, if ordinary care and attention is given the incinerator. Liquid slops should be evaporated by being poured slowly along the vertical walls of the incinerator, not upon the fire bed, and the solid garbage should be placed on top of the fuel. It has been determined that a skilled attendant can destroy 100 gallons of liquids and 23 cubic feet of solid garbage in about 12 hours by using one-sixteenth of a cord of wood.

Where rock is not available, material (brick, 340; lime, three-fourths bag) will be obtained on requisition from the quartermaster. Where disposal in a sanitary way can be made by means of carts, the garbage can may be used. The cans shall be thoroughly cleaned, scalded and coated with crude petroleum after emptying.

5. *Disposal of manure and care of picket lines.*—All manure shall be hauled to the camp dump. Picket lines shall be kept broom swept and all manure and straw hauled

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off daily. A weekly incineration of the picket lines shall be ccccomplished with crude oil at the rate of 10 gallons to each line. Crude oil may be obtained from the Quartermaster Corps on usual requisition.

6. *Disposal of excreta.*—Where a water carriage system is not feasible, the Havard box shall be used over the earth latrines. Daily inspections of this system are enjoined on the part of the medical officer of the organization, who will see that the following plan is carried out:

(*a*) The latrine shall be burned out thoroughly with crude oil and hay twice a day. (Each burning, 1 gallon crude oil and 7.5 pounds of hay, or straw.)

(*b*) The boxes shall be at all times kept fly-tight; this implies closure of all cracks and care of the hinges and a back construction so that the lids drop automatically. The latrine seats shall be washed off twice weekly with a 1 to 100 solution of cresoline, or other disinfectant, and whitewashed inside twice weekly.

(*c*) Latrines shall be rebuilt when filled to within 2 feet of the top.

(*d*) Where water-carriage system is in vogue, either the automatic flush or trough system shall be installed.

7. *Kitchens and mess rooms.*—Kitchens and mess rooms shall be securely screened and an efficient fly trap provided for catching such flies as gain entrance thereto. An effective fly trap consisting of a light wooden frame, covered with wire gauze, extending to about one-eighth of an inch of the floor of the trap, is readily constructed. It has been found that sweetened water, slightly acidulated with vinegar, is an excellent bait.

Ice boxes installed shall be inspected daily and drip pans emptied and scalded out.

Garbage cans shall be kept on wooden racks and elevated from the ground, and cans burned out daily with oil to prevent fouling, and kept clean outside with a coat of whitewash.

8. Arrangements shall be made for the installation of shower baths for all troops and a careful inspection shall be made daily to see that waste water therefrom is so disposed of as to prevent mosquito breeding.

9. The use of the mosquito bar is imperative and it shall be used in all districts where mosquitoes are prevalent.

10. *Food and drinks.*—No food, drinks, or like commodities will be sold in camp except in the authorized exchanges.

Attention is called to the use of the following foods, the elimination of which from the messes will serve to prevent a variety of intestinal disorders:

(*a*) Canned milk and fish opened the day before. (Fish and milk poisoning.)

(*b*) Hashes of meats and potatoes prepared the night previous. (Ptomaine poisoning of severe type.)

(*c*) Locally grown green vegetables, uncooked. (Dysenteries and diarrhea.)

11. *Malaria.*—When malaria prevails, the daily use of three grains of sulphate of quinine, to be increased as indicated, as a malarial prophylactic is made compulsory.

12. *Inspections.*—Surgeons of organizations shall make a daily inspection of the commands to which they pertain, covering the following: Picket lines, latrines, kitchens, barracks, inclosed toilets, baths, garbage receptacles, incinerators, and all food supplies; they shall make a verbal report at once to their respective commanding officers for the correction of any sanitary defects noted, and a similar report, with the action taken, to the sanitary inspector on his next visit.

13. A special report shall be made at once by the surgeon of each organization to the sanitary inspector for the information of the chief surgeon, in the following cases:

(*a*) Acute infectious or contagious diseases developing in barracks or camps.

(*b*) Cases of fever of 101° or over, attended with albuminuria.

(*c*) Unusual prevalence of mosquitoes in vicinity.

(*d*) Development of amœbic or bacillary dysentery or malaria in the command.

14. Venereal prophylaxis and venereal inspections shall be carried out thoroughly and the required monthly report of the number of new cases of venereal diseases shall be sent to the chief surgeon, through the sanitary inspector, each month.

15. Areas about camps in which mosquitoes could breed, such as cisterns, tanks, woods, gutters, pools, and drains shall be kept under close observation by the surgeon, and the proper remedies applied, i. e., screening, draining, oiling, etc.

16. Sanitary squads composed of medical officers, noncommissioned officers, and privates of the Medical Department will be organized by the chief surgeon. The sanitary squad will supervise and assist in the disposal of camp wastes. Civilians employed as sanitary laborers will be employed by the Quartermaster's Department and turned over to the Medical Department.

The sanitary police officer will make requisition on the Quartermaster General for such transportation, labor, material, etc., as may be needed. When assigned to this service they will not be diverted to other uses except by competent authority.

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17. *Flies.*—All possible breeding places of flies, accumulations of wastes and filth, should be destroyed by incineration and particular attention given to the manure and refuse from the picket lines and stables.

An energetic campaign must be begun at once against the mature flies.

Each company or organization will provide itself with several large flytraps, to be placed near kitchen doors, store tents, and wherever flies are present.

INFECTIOUS DISEASES.

Certain infectious diseases are of primary importance in military sanitation and will be mentioned briefly in the following notes:

Typhoid fever.—Is caused by a specific organism, the bacillus typhosus. When the bacillus finds an entrance into man's intestinal tract typhoid fever is likely to result.

The excreta, and particularly the stools of the victim of typhoid, and his urine are loaded with the typhoid bacilli. Hence the necessity for extreme care in properly disposing of excreta, and the strict avoidance of camp pollution.

Typhoid fever, like cholera, is due to the transference of fecal matter of the infected individual, either directly or indirectly, to the alimentary canal of another nonimmune person.

Typhoid fever is, therefore, chiefly a filth disease and one widely distributed over the world. Its presence in a camp or community is chiefly determined by the personal cleanliness of the occupants, and largely by their method of disposing of human excreta.

Through careless means of disposing of feces and urine, water, milk, and food become infected, very largely through the agency of insects, principally the fly, which, breeding in accumulations of refuse, manure, and various forms of filth, transfer the disease germ mechanically on their bodies and in their secretions from the infected source to the food. Absolute protection of food supplies of all kinds and persistent warfare on the fly are imperative.

The most common mode of infection in typhoid, as was shown in the camps of 1898, was by contact, direct or indirect, with the infected individual. About 60 per cent of all cases, as shown by investigations, are believed to be due to contact infection.

Direct contact infection follows intimate association with the infected person.

Indirect contact infection results from clothing, bedding, drinking cups, food, dishes, etc., which may serve to carry the infection from one person to another.

The necessity for great care as to personal cleanliness is obvious.

Frequent bathing, the washing of hands before eating, attention to laundering underclothing, and general personal cleanliness are obligatory, as well as the prompt sterilization of all articles which have been used by those suffering from the disease, as well as by "carriers," those excreting typhoid bacilli, though presenting no active symptoms of the disease.

These "carriers" are an insidious menace, an even greater one than a frank case of typhoid fever, because so frequently unrecognized. The greatest precautions must be taken by sanitary officers for the prompt recognition, isolation, and treatment of these "carriers."

The regulations direct that all soldiers, immediately on entrance into the service, be protected against typhoid fever by vaccination, as well as against smallpox. This regulation will be strictly enforced.

Malaria.—Is caused by a microorganism (the plasmodia malariæ) which gains access to the body through the bites of mosquitoes belonging to the genus anopheles.

The predisposing causes of the disease are those that favor the development of mosquito life.

On account of the nocturnal habits of the malaria-bearing mosquitoes, the disease is more likely to be contracted at night.

Camps will not be located near swamps or in places where standing water favors the development of the mosquito. Every precaution will be taken to destroy these breeding places by draining and filling, or by oiling them and by the cutting away of all grass or undergrowth for a distance of 200 yards about camps and habitations in order that the adult mosquitoes may not find lodgment and protection there.

Since the malaria mosquito is chiefly a night biter, the regulation requiring the use of the mosquito bar at night will be rigidly enforced and frequent inspections made to see that no evasion of this order occurs.

In certain conditions the use of preventive doses of quinine may be required and administered by order under the supervision of the medical officer. All cases of malaria will be promptly isolated for treatment and protected from attacks by mosquitoes.

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Yellow fever.—Is transmitted by the bite of the yellow-fever mosquito (the *Stegomyia calopus*), as proved by Maj. Walter Reed, Medical Corps, United States Army, in 1900.

Yellow fever is essentially a disease of the Tropics, and its existence is entirely dependent upon the distribution of this single species of mosquito, small and silver striped, active principally at evening time, and breeding generally in small accumulations of water close to the habitations of man.

The prevention of this disease, as in malaria, depends chiefly on the destruction of the mosquito and its breeding places, the proper protection against the bites of the insects at all times, and the early isolation, protection, and treatment of each case of yellow fever as soon as suspected.

Cholera.—Is an acute infectious disease caused by a comma-shaped microorganism—the cholera bacillus.

These germs breed in the intestines of man and find their way into the mouth of another individual through the medium of infected water, milk, and food; or the germs can be conveyed by carriers—by flies—and by contact infection, as in typhoid fever.

In every case this connection is certain and absolute. The disease extends in no other manner.

In the cholera patient practically the only infected discharge is the stool. It is therefore essentially a filth disease.

As in typhoid fever, contaminated food, dirty hands, flies, and infected clothing and bedding are frequent sources of danger. All the sanitary precautions used in the prevention of typhoid fever should be exercised, including the careful searching out of carriers—those individuals having the germs of cholera in their intestines and excreting them in their stools, thus scattering the infection and unknowingly infecting those about them and greatly assisting in the rapid spread of the disease.

These "carriers" in an infected district are often numerous, ranging in numbers from 5 to 10 per cent of the apparently normal population in a community where an epidemic prevails. "Carriers" are specially dangerous if connected in any way with the handling of the food supply.

In cholera, as in typhoid fever, dysentery, and other so-called diarrheal diseases, great care should be exercised to provide that—

(1) Only sterilized water is used.
(2) Only recently cooked and properly served food is allowed.
(3) All kitchens are screened.
(4) All refuse is burned and constant warfare made against the fly and its breeding places.

Anticholera vaccination has been proved an effective preventive measure also, but again, as in typhoid fever, the application of vaccination in these diseases does not lessen in any degree the responsibility or importance of rigidly enforcing all the general sanitary rules which have been here briefly stated.

Dysentery.—Under this head are included at least two severe specific diseases—bacillary dysentery and amebic dysentery—each caused by distinctive organisms.

In addition there may be mentioned under this heading all the various forms of diarrhea and colitis characterized by colic, bloody stools, and tenesmus.

Some of these are undoubtedly of a nonspecific and temporary nature, due to chill or to indiscretions in eating and drinking.

Prevention is the same as in typhoid fever and cholera, since there is no doubt that in the specific bacillary and amebic dysenteries the cause of the infection leaves the infected man by his excreta, largely in his feces.

Attention is again directed to what has already been said, to the great importance of strict attention to the disposal of all excreta and wastes, and to the careful investigation and protection of the water supply.

The three diseases, typhoid fever, cholera, and dysentery, may from the standpoint of prevention be considered as forming a well-marked group.

In all the mode of departure from the infected man is in his dejecta, in all it enters the infected man in food and drink, and in all three the fly very often provides the most important link.

Typhus fever.—Is an acute infectious disease caused by a specific germ, characterized by sudden onset, high fever, marked nervous symptoms, and macular eruption. It has prevailed in Mexico since the middle of the sixteenth century.

Typhus fever is transmitted to man only by the bite of the louse, which infests the body and clothing of the victims.

The prevention of typhus fever depends, therefore, upon personal cleanliness and the avoidance and destruction of infected lice.

Frequent bathing and cleansing of clothing, with repeated inspections of garments, particularly the seams, where the eggs of the louse are deposited, are imperative precautions.

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The body louse lays its eggs among and attached to the fibers of clothes, with a special preference for seams and linings, a point to be remembered in the destruction of lice.

These eggs are the size of a small pinhead, yellowish white in color, goblet-shaped, and attached at the lower end to the cloth by a cement excreted by the female. They can be destroyed with boiling water or kerosene.

The avoidance of buildings, places, and persons known to be infected with lice is of first importance.

In case troops are sent into a typhus area, a railway disinfecting and bathing train will be provided and stationary plants of like character established at the bases.

Smallpox.—All soldiers will be vaccinated against this disease on enlistment. Vaccination confers immunity against smallpox for a number of years.

Any case occurring among recruits will be isolated, and contacts not protected by recent successful vaccination will be revaccinated.

Epidemic cerebro-meningitis.—Preventive measures in this disease consist of prompt recognition, isolation, and treatment of the patient.

"Carriers" will be also carefully sought for and kept under close observation.

Measles, mumps, and scarlet fever.—When these diseases appear in a command all cases will be immediately isolated, all "contacts" inspected daily, and, where the diseases show a tendency to spread, a detention camp will be established, where all recently arrived recruits will be detained under observation for a period of 12 days before being permitted to join their organizations.

Venereal diseases.—The cause of these diseases is a matter of common knowledge. They are entirely preventable, and the Government punishes those who expose themselves and contract venereal disease by prompt stoppage of pay and restriction of privileges while under treatment.

All preventive measures prescribed by Army Regulations against infections of this character will be rigidly enforced.

WATER SUPPLY.

The complaints as to insufficient and unpotable water supply at the various posts, mentioned in the last annual report, have been, in the main, remedied, and those made during the year 1915 will, it is believed, be satisfactorily adjusted by the appropriation of funds necessary to make such necessary alterations as will insure an adequate and potable supply.

In connection with the "Bags, water, sterilizing" placed upon the supply table, mention of which was briefly made in the last report of this office under this caption, it is considered meet to mention the highly satisfactory results obtained, as evidenced by the reports reaching this office, by the troops serving in the United States, as well as those making up the punitive expedition into Mexico, in the use of the bags in question.

Too much credit can not be given Maj. William J. L. Lyster, Medical Corps, the officer who devised this most useful article of equipment. During the last year certain improvements have been made in the original bag which, judging from the reports of trials, stamps it at once as an indispensable article of equipment. Among the more important merits which the bag possesses may be mentioned:

1. Its portability, thereby making it adaptable for use by small commands segregated by necessity from the main column of troops.

2. Simplicity of operation, thus insuring prompt and efficient service and a supply of potable water, not raised in temperature, whenever the demand arises.

3. Availability of potable water, obviating the desire to quench the thirst at streams, irrigation ditches, etc., on the march, since the canteen is sterilized and the filling of it supervised by those competent to determine potable water.

4. The lessening of the possibilities for ingesting, through unsterilized water, of organisms causing typhoid fever, the dysenteries,

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including amœbic or tropical dysentery, thus making for a minimum sick rate and for a greater efficiency among the troops.

The hypochlorite of calcium used as the sterilizing agent in connection with the bag is put up in hermetically sealed glass tubes and the tubes packed in a corrugated paper container, making a light, portable package, with little or no weight added to the pack on the soldier's back. The containers being made of corrugated paper will stand much rough usage without danger of breaking the tubes and robbing them of its active agent—chlorin.

BARRACKS AND QUARTERS.

Attention is again invited to the matter of overcrowding at the recruit depots, particularly at Jefferson Barracks, Mo., and Columbus Barracks, Ohio. Crowding adds to the ready spread of infection, especially during the winter months, when the morbidity and mortality rates for measles have been rather high. Too much emphasis can not be laid on the evil results of crowding at this time of the year, when the recruiting is augmented, and with the prospect of an increased volume of recruits in the future this defect should be remedied. It has proven such a serious defect not alone in causing temporary suspension of the work at the depots, but in causing a very large number of deaths among young men contracting measles and other contagious diseases who had reported at the depots in robust health.

During the summer months, when an open-air life is permissible, the question is not so vital; but when climatic conditions are unfavorable and infections so rife and of such increasing virulence as experienced during the winter months, at which time recruiting is so much increased in volume, crowding is a most serious defect and should, for the best interests of the recruit depots, be reduced as much as possible, even if necessary to move the permanent personnel, as has been done in the past when an epidemic threatened.

It is believed that the expense of added buildings would, in the long run, prove a great saving in reducing the disability and mortality incident to overcrowding and the resultant spread of infection.

CLOTHING.

There has been no change in the clothing to be worn as provided for in Uniform Regulations since the last report. However, owing to the scarcity of materials it has been found necessary to make some change in the fabric used in the hat, this with the idea of meeting abnormal conditions in the National Guard.

A board of officers with the punitive expedition in Mexico give it as their opinion that the present cuff legging is not a success and urgently recommended the return to the legging similar in shape to that used in 1898, with certain parts reinforced with leather for the Field Artillery and Cavalry.

Several recommendations have been submitted from various sources to do away with the high collar on all of the coats, more especially in the Canal Zone, and adopt for the officers in particular a collar similar to that worn by the British officers, and for the men a turn-down collar similar to the old blouse collar worn before 1898. No definite action has, however, been taken on any of these recommendations.

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MEDICAL DEPARTMENT.

The following statement shows the strength of the personnel commissioned, enlisted, and employed by contract or otherwise, of the Medical Department on June 30, 1916:

Medical officers	443
Medical reserve officers, active duty	146
Contract surgeons	17
Dental surgeons, commissioned	40
Acting dental surgeons, under contract	35
Army Nurse Corps	150
Medical Department enlisted personnel	4,670
Civil employees	291
Total medical personnel	5,792

MEDICAL CORPS.

The Medical Corps is composed of the commissioned medical officers of the Regular Army:

Authorized strength June 30, 1916	444
In service June 30, 1915	433
Appointed during the year	14
Total	447
Losses during the year	4
In service June 30, 1916	443

On October 1, 1915, 20 candidates who had passed the preliminary examination for appointment in the Medical Corps reported at Washington to take the course of instruction at the Army Medical School. Seventeen successfully completed the course of instruction at the school and were graduated June 1, 1916. Fourteen graduates were recommended for appointment in the Medical Corps of the Army.

Losses during the fiscal year.

	Colonel.	Captain.	First lieutenant.	Total.
Died	1	1	.....	2
Retired	1	.....	.....	1
Resigned	.....	.....	1	1
Aggregate	2	1	1	4

The following promotions were made: 2 lieutenant colonels to be colonels; 2 majors to be lieutenant colonels; 2 captains to be majors; 22 lieutenants to be captains.

The department held two preliminary examinations for appointment in the corps, the first on July 12, 1915, and the second on January 10, 1916, at various Army posts throughout the country. Nineteen applicants passed the preliminary examinations. Of this number 12 attended the session of the Army Medical School, which ended June 1, 1916, leaving 7 who will attend the next session of the school. Preliminary examinations will be held on July 17, 1916, August 14, 1916, and September 5, 1916, at various Army posts throughout the United States, Panama, and Porto Rico, to which over 200 candidates have been invited.

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MEDICAL RESERVE CORPS.

On roster June 30, 1915		1,426
Appointed during the year		542
		1,968
Losses during the year:		
Resigned	34	
Discharged	6	
Died	11	
Commissions vacated by appointment to regular corps	14	
		65
On roster June 30, 1916		1,903

Of the 1,903 on roster June 30, 1916, 146 were on active duty and 1,757 on the inactive list.

On active list June 30, 1915		86
Ordered to active duty during the year		136
		222
Relieved from active duty	62	
Commissions vacated	14	
		76
On active duty June 30, 1916		146

An officer of the Medical Reserve Corps residing in the vicinity of each military post has been designated as a locum tenens, and the policy has been adopted of calling such officer into actual service for duty at his post when all the regular medical officers thereat are called upon to accompany troops into the field.

CONTRACT SURGEONS.

In service June 30, 1915	14
Contracts made during the year	11
Total	25
Contracts annulled during the year	8
Contracts in force June 30, 1916	17

These contract surgeons are on duty at arsenals, remount depots, transports, etc., at the rate of pay ranging from $75 to $150 per month.

DENTAL CORPS.

Dental surgeons:		
Number of dental surgeons in service June 30, 1915	34	
Appointed during the year	7	
	41	
Resigned during the year	1	
On duty June 30, 1916		40
Acting dental surgeons:		
Number of acting dental surgeons in service June 30, 1915	35	
Appointed during the year	15	
	50	
Contracts annulled	8	
	42	
Contracts annulled by acceptance of commission as first lieutenant, dental surgeon	7	
On duty June 30, 1916		35
Total		75

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One examination of applicants for appointment as acting dental surgeon, United States Army, was held during the year, on October 18, 1915. At this examination 10 were successful; the 10, with 5 who had passed a previous examination, were given contracts.

Under the act of March 3, 1911, acting dental surgeons who have served three years in a satisfactory manner become eligible for appointment as dental surgeons and after passing the prescribed examination are eligible for commission in the Dental Corps with the rank of first lieutenant, provided the total number of dental surgeons of that rank did not exceed 60.

During the year 10 acting dental surgeons, having served 3 years, became eligible for such promotion; of these, 7 passed the required examination and have been promoted.

ENLISTED FORCE OF THE MEDICAL DEPARTMENT.

Strength at date of last report, June 30, 1915:	
Sergeants first class	299
Sergeants	408
Corporals	42
Acting cooks	187
Privates first class and privates	3,057
Total	3,993
Gain, July 1, 1915, to June 30, 1916:	
By enlistment	586
By transfer from line, including unassigned recruits from depots	1,419
By return from desertion	153
General prisoners restored to duty	6
Total	2,164
Loss during same period:	
By discharge—	
Expiration of term of service	272
By order	398
Certificate of disability	49
Sentence general court-martial	165
Transfer to reserve	201
Transfer to line	102
By retirement	29
By death—	
Due to disease	16
Drowned	1
Suicide	1
By desertion	251
Dropped	2
Total	1,487
Leaving in service June 30, 1916:	
Sergeants first class	334
Sergeants	524
Corporals	40
Cooks	199
Privates first class and privates	3,573
Total	4,670

The enlisted personnel of the Medical Department was also reorganized. The designation Hospital Corps was changed to Medical Department (enlisted force). Two new grades above sergeant, first class, were established: Master hospital sergeant, with pay of $75 per month, and hospital sergeant with pay of $65 per month. The pay of sergeants was made to compare to that of the similar grade in other staff corps, $36 per month.

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The percentage basis was adopted for the Medical Department, 5 per cent of the enlisted strength of the Army being allowed: in time of actual or threatened hostilities the Secretary of War is authorized to cause to be enlisted such additional number of men as the needs of the service may require.

Following are the grades as now established: Master hospital sergeants, hospital sergeants, sergeants first class, sergeants, corporals, cooks, horseshoers, saddlers, farriers, mechanics, privates first class, privates.

Ratio of privates first class to privates is now the same as in the Quartermaster Corps.

Ratings for additional pay for privates first class were established as follows: Dispensary assistant, $2 a month; nurse, $3 a month; surgical assistant, $5 a month.

ARMY NURSE CORPS.

The authorized strength for the Army Nurse Corps for the fiscal year ending June 30, 1916, has been 150, which, however, has been far from sufficient to supply the demand for nurses. Two nurses from the eligible list have been employed under contract since April 28, at the Walter Reed General Hospital, Takoma Park, D. C., owing to the increased work at this station. The appointment of 12 additional nurses was authorized on June 9 by the Secretary of War, and in consequence 12 nurses were assigned to duty at the base hospital, Fort Bliss, Tex. Eight more have been ordered to the base hospital, Fort Sam Houston, Tex. Additional nurses will be sent to both these hospitals as soon as provision is made for an increase in the Nurse Corps. Four nurses who have been on duty at Fort Leavenworth have been transferred from there, on account of the transfer of the troops to the Mexican border.

New quarters for nurses have been furnished and are occupied at the department hospital, Honolulu, and the quarters at Letterman General Hospital will be ready for occupancy in August. Plans are being drawn also for nurses' quarters at Fort Sam Houston, the nurses in the meantime occupying rented quarters at the post as a temporary arrangement.

Seven hundred and fifty requests for application blanks have been received during the year. During the same period there have been 34 discharges and 1 death; 40 appointments and 7 reappointments; total, 47.

The appropriation bill for the coming fiscal year now before Congress provides for 56 additional nurses, but on account of the recent mobilization on the Texan border of the militia, in addition to the regular troops, a further increase will be required.

* * * * * * *

MEDICAL AND HOSPITAL SUPPLIES.

The appropriation made by Congress for the fiscal year 1916 for the support of the Medical Department was $787,500, this being $87,500 more than the amount appropriated for the fiscal year 1915.

The new Manual for the Medical Department was completed and ready for promulgation about June 15. It is being issued by The Adjutant General of the Army. This manual prescribes a medical

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officer's belt and a belt for the Hospital Corps medical equipment, both recommended by the equipment board. The latter is intended to take the place of the pouch, Hospital Corps, M. M. D., 1911. Since this new personal equipment has been approved various difficulties have arisen with reference to the manufacture of the other ordnance equipment which should be issued with it. The issue of this equipment is therefore being held in abeyance, and the old equipment will be continued in use for the present.

The medical supply depot at Galveston, Tex., being no longer needed, was discontinued about January 7, 1916. Field medical supply depots have been established at San Antonio and El Paso, Tex., for the purpose of promptly furnishing supplies to the border camps. A reserve medical supply depot was also temporarily established at the advance base, Columbus, N. Mex. Later this was discontinued, it being decided that all necessary supplies for this vicinity could be satisfactorily obtained from the El Paso depot. In addition a divisional reserve supply was furnished to the punitive expedition and located at Colonia Dublan, Mexico. A new medical supply depot for the storage and issue of both post and field supplies was established in Honolulu, Hawaii, in March, 1916.

Motor ambulances have been furnished to the ambulance companies in Mexico, and field hospital No. 7 has been equipped with motor trucks. Ambulances of the following type have been purchased: G. M. C., Buicks, White, Service, and Fords. Trailers were also furnished with these ambulances for trial. The light cars and trailers were found to be unsatisfactory for use in Mexico.

At the beginning of the militia mobilization period the officers in charge of the medical supply depots at New York and St. Louis were directed to purchase full ward equipment for one hundred 50-bed wards as promptly as possible, with a view to having these complete equipments ready for emergency use on the border.

Sufficient typhoid and smallpox vaccines were furnished to each mobilization camp for the immunization of the Organized Militia, and a camp hospital was furnished to each mobilization camp not located at a post for the care and treatment of members of the Organized Militia who required such attention at the camp. The post hospital and medical supplies were available for the use of all mobilization camps located at Army posts.

ARTIFICIAL LIMBS AND APPARATUS.

Under the laws relating to artificial limbs and apparatus or commutation therefor, orders on manufacturers were given during the fiscal year for 22 artificial legs and 1 foot. Commutation certificates were issued for 129 cases of amputated leg, 77 of amputated arm, 9 of amputated foot, and 1,320 cases of loss of use of limb.

Under the act of June 17, 1870, and subsequent amendments thereto, 23,703 disabled soldiers and sailors have been furnished artificial limbs and apparatus or have received commutation in money since the passage of the act, as follows:

Total number benefited to June 30, 1916	23,703
Died	16,053
Dropped from rolls	592
Rejected after one or more payments	572
Remaining on rolls at end of fiscal year	6,486
Loss of beneficiaries during the year	367

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It is estimated that the sum of $210,000 will be required to pay the claims during the fiscal year ending June 30, 1918.

APPLIANCES AND TRUSSES.

One hundred and sixteen appliances were issued during the fiscal year ending June 30, 1916, and 204 trusses for disabled soldiers were furnished and fitted.

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Very respectfully,

H. P. BIRMINGHAM,
Colonel, Medical Corps,
Acting Surgeon General.

The SECRETARY OF WAR.

REPORT OF THE CHIEF OF ENGINEERS.

WAR DEPARTMENT,
OFFICE OF THE CHIEF OF ENGINEERS,
Washington, October 5, 1916.

From: The Chief of Engineers.
To: The Secretary of War.
Subject: Annual Report.

I present for your information the following report upon the duties and operations of the Engineer Department for the fiscal year ending June 30, 1916.

OFFICERS OF THE CORPS OF ENGINEERS.

* * * * * * *

On the 30th of June, 1916, the disposition of officers of engineers, according to their duties, was as follows:

Chief of Engineers, in command of the Engineer Department, etc	1
Assistants to the Chief of Engineers, or on special duty in his office	9
River and harbor work	29
River and harbor and lighthouse work	3
River and harbor and fortification work	34
River and harbor and fortification work and department engineers or assistants	2
River and harbor work and department engineer	1
Department engineer and assistants	4
With the government of the District of Columbia	4
Public Buildings and Grounds, District of Columbia	2
Improvement of Yellowstone National Park	2
At engineer depots in the United States	2
On duty with the General Staff Corps	3
On duty at the Army War College	1
On duty at the United States Military Academy	11
On duty at the Engineer School	22
With troops on the Mexican border	40
On duty with troops elsewhere in the United States	9
On special duty in the Southern Department	13
On duty connected with militia affairs	2
On railroad duty in the United States	2
Road work in Alaska	1
Military observers or attachés in Europe	2
Department engineer, Philippine Department, and fortification work, Philippine Islands	1
With engineer troops and on other military duty in the Philippine Islands	11

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River and harbor work and military duty in the Hawaiian Islands	2
On military duty or with engineer troops in the Hawaiian Islands	5
On military duty or with engineer troops on the Isthmus of Panama	6
On fortification work, Panama Canal	1
On duty connected with the Panama Canal—	
On the Isthmus	5
At Washington, D. C	1
Total	231

The above table shows that out of a total of 230 officers (not including the Chief of Engineers) only 76, or approximately 33 per cent, were on duty wholly under the control of the Chief of Engineers; 8, or 4 per cent, while performing some duty under the control of the Chief of Engineers were at the same time performing other duties under various other branches of the Government; while 146, or 63 per cent, were on duty detached from the control of the Chief of Engineers.

With regard to the character of the duties performed, 139, or 60 per cent, were engaged on military duty exclusively; 48, or 21 per cent, were engaged on nonmilitary duty exclusively; and 43, or 19 per cent, were performing both military and nonmilitary duty.

By the act of Congress approved June 3, 1916, a large increase was authorized in the strength of the Army, to be distributed over the period until July 1, 1920. The increase in the commissioned strength of the Corps of Engineers authorized by this act is about 51 officers per year. After July 1, 1920, when the fifth and last increment takes effect, the total authorized commissioned strength of the Corps of Engineers will be 505 officers, not including chaplains, of whom one is authorized for each of the seven regiments of Engineer troops.

ENGINEER TROOPS.

Under the provisions of section 11 of the act of June 3, 1916, the enlisted force of the Corps of Engineers is eventually to consist of seven regiments of six companies each, two battalions of mounted engineers of three companies each, and one band. This legislation carries out the plan recommended in the annual report of the Chief of Engineers for 1915, and when carried into effect will provide Engineer troops in the approximate ratio of 6 per cent of the authorized Infantry strength of the Army, and mounted Engineer troops in the approximate ratio of 3.7 per cent of the authorized Cavalry strength. The increase is to be spread over five years, in accordance with the terms of the act.

The first increase takes effect July 1, 1916, when the existing 3 battalions (12 companies) are to be expanded into 3 regiments (18 companies), and in addition 1 mounted company is to be organized. In order to preserve, as far as possible, the historical continuity of existing organizations, each battalion headquarters is to become the headquarters of the regiment having the same numerical designation, and the existing Engineer companies are to be retained with only such changes in designation as may be necessary. The new companies are to be formed from nuclei obtained by transfers from the older companies. The new mounted company is to be organized from the mounted section of existing Engineer companies.

For many years the existing engineer companies have been maintained at the maximum or war strength, the authorized strength of

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three battalions being 1,968 enlisted men, not including the band. By War Department orders the existing companies of 154 men are to be reduced to the peace strength of 109 men, and the new companies are to be formed at this minimum or peace strength. The authorized enlisted strength of the three regiments and the one mounted company will be 2,148 enlisted men. Experience in the past has shown most clearly that the minimum strength of an Engineer company, on account of the multifarious character of their duties, is much too small for efficient service, even in time of peace, and consequently it has been customary to maintain the Engineer companies at war strength, even during periods when practically all of the other organizations of the mobile army were at peace strength. The duties of the Engineer troops have not been reduced by new legislation, and I earnestly recommend that, as soon as the number of enlisted men in the Army has increased enough to permit it, the strength of the Engineer companies be again raised to the maximum strength. In this recommendation I am supported by the repeated requests of department commanders for more Engineer troops.

According to formerly existing law, one-half of the authorized number of privates in each company were rated as first-class privates, but under the new law only one-fourth of the privates are to have this rating, and consequently the reduction in the strength of the existing Engineer companies, even with the increase in the number of Engineer companies, has required the reduction or demotion of quite a number of deserving first-class privates. It is believed that this reduction in grade, due to no fault of the persons concerned, is bound to have a more or less demoralizing effect. The increase in the strength of the Engineer companies just recommended will permit the restoration of the more deserving of the demoted men to their former grade.

During the fiscal year the Third Battalion of Engineers has been on foreign service, distributed in the Philippine Islands, Hawaiian Islands, and the Panama Canal Zone. The change in organizations about to be made will effect the new Third Regiment which is to be formed from the Third Battalion. The regiment will remain in the foreign localities named. The rest of the enlisted strength of the Engineers will be in the continental limits of the United States.

THE BOARD OF ENGINEERS.

The regulations for the government of the Corps of Engineers provide for a board of engineers, consisting of not less than three officers designated by the Chief of Engineers with the sanction of the Secretary of War. This board acts in an advisory capacity to the Chief of Engineers upon important questions of engineering, particularly in the preparation of designs for the various structures and devices required in the military engineer service.

During the fiscal year the following changes have taken place in the personnel of the board:

Relieved: Col. W. M. Black, Corps of Engineers, commissioned Chief of Engineers on March 7, 1916, and Lieut. Col. Tracy C. Dickson, Ordnance Department, retired August 16, 1915.

Detailed: Lieut. Col. Charles H. McKinstry, Corps of Engineers, August 1, 1915, and Lieut. Col. Clarence C. Williams, Ordnance Department, October 7, 1915.

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As constituted at the close of the fiscal year The Board of Engineers was composed of:

Col. F. V. Abbot, Corps of Engineers;

Lieut. Col. C. H. McKinstry, Corps of Engineers;

Lieut. Col. C. C. Williams, Ordnance Department;

Capt. Thomas M. Robins, Corps of Engineers, recorder and disbursing officer.

In addition, division engineers in whose divisions there are fortifications are, *ex officio*, members of The Board of Engineers when matters pertaining to defensive works in their respective divisions are under consideration by the board.

During the fiscal year the board has reported upon various subjects connected with the engineer duty of the Army.

FORTIFICATIONS IN THE UNITED STATES.

The scheme of national defense upon which work was in progress between 1888 and 1906, during which time nearly all of our existing seacoast batteries were built, was based primarily upon a report submitted January 16, 1886, by the "Board on Fortifications and Other Defenses," commonly designated as the Endicott Board. On January 31, 1905, the President organized a board with the then Secretary of War, Hon. William H. Taft, as president, to review the projects for the United States and for the insular possessions, to indicate the localities where defenses were most urgently needed, and to determine the character and general extent of the defenses, with their estimated cost. This board is known as the National Coast Defense Board. The board submitted its final report February 1, 1906.

Permanent seacoast defenses have been installed at the following localities in the United States:

1. Kennebec River, Me.
2. Portland, Me.
3. Portsmouth, N. H.
4. Boston, Mass.
5. New Bedford, Mass.
6. Narragansett Bay, R. I.
7. Eastern entrance to Long Island Sound.
8. New York, N. Y.
9. Delaware River.
10. Baltimore, Md.
11. Washington, D. C.
12. Hampton Roads, Va.
13. Cape Fear River, N. C.
14. Charleston, S. C.
15. Port Royal, S. C.
16. Savannah, Ga.
17. Key West, Fla.
18. Tampa Bay, Fla.
19. Pensacola, Fla.
20. Mobile, Ala.
21. New Orleans, La.
22. Galveston, Tex.
23. San Diego, Cal.
24. San Francisco, Cal.
25. Columbia River, Oreg. and Wash.
26. Puget Sound, Wash.

In addition to the above, work is in progress in the coast defenses of Los Angeles, Cal., and work will be begun at an early date on fortifications at the entrance to Chesapeake Bay, with funds now available.

The fortifications recommended by the Endicott Board were sufficient to meet the defensive requirements of our seacoast as far as they could be foreseen at that date and practically all of our existing seacoast batteries were covered by projects prepared by that board. Of the existing emplacements over 90 per cent were completed or were in progress at the end of the Spanish War.

The general project of coast defense prepared by the Endicott Board was reviewed by the National Coast Defense Board, which, in a number of cases, recommended additional work, but the greater

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part of the work recommended by this latter board related to the accessories of the defenses, such as fire control, searchlights, power plants, submarine mine defenses, etc., rather than to the construction of new emplacements.

When designed and constructed our seacoast batteries were thoroughly modern and fully adequate for the purpose for which they were intended, but the work of battery construction has in the past few years been allowed to practically cease and has not kept pace with the recent progress in naval development.

It can not be too emphatically stated that the art of fortification is a progressive one. It must continually grow to keep pace with the new discoveries which give it special advantages or to meet and offset progress in the development of naval vessels and armament against which the forts are expected to contend. However carefully planned and constructed, a battery must always pertain to the date when completed and must be out of date in so far as relates to things which have been discovered or developed since the battery was planned.

Seacoast defenses are designed to fight naval vessels and to thus protect certain cities, harbors, or other utilities from bombardment by an enemy's vessels within any of the area covered by the seacoast guns. In locating and designing batteries the range and power of the naval guns, as well as the number of such guns which can be brought against these fortifications, must be given consideration, and, unless our fortifications are to become obsolete, changes in any of the elements of naval offense must be met by corresponding changes in seacoast batteries, and these changes must in most cases consist not merely of modifying the older emplacements by affording additional protection for the gun platforms and magazines against the increased power of naval guns, or in mounting more powerful guns in these older emplacements, but rather in the construction of absolutely new batteries in new locations. The older batteries were necessarily designed and located so as to obtain the maximum effect with guns of the range of those to be mounted in these emplacements. If the guns which were to be mounted in these older batteries had been of longer range, the locations of the batteries would in many cases have been different, and if more powerful and longer-range guns be mounted in these older batteries a large proportion of this increased power and range will in most cases be lost.

For the above reasons it should be noted that a fixed project for seacoast defense can never be adequate, and its obsolescence must begin before it can be completed. It is believed that our seacoast defenses can best be kept sufficiently up to date by the adoption of a regular annual program which will provide for replacing each year from 4 to 10 per cent of our older emplacements, depending upon the size and condition of the older emplacements and the rate of progress being made in naval offense.

The seacoast defenses already erected at the entrances of our most important harbors are a formidable obstacle against entrance by a fleet. When these are reinforced by the additional defenses planned and partly in course of construction, it is believed that the use of these harbors by an enemy fleet will be forbidden and that adequate provisions will have been made against destruction by direct fleet fire of the cities bordering these harbors and of the important mili-

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tary objectives contained therein. But even then safety is not assured. Experience has shown that under these conditions a direct attack from the sea is so hazardous to the attacking fleet and so rarely successful as not to be undertaken under ordinary circumstances. The attack usually is made from the land by an expeditionary force placed on shore at a point distant from and not covered by harbor-defense guns. Such an attack will be supplemented by attacks from the air. Adequate preparation for defense against these attacks has not yet been made. Mobile army forces must be available on the exposed frontier in numbers sufficient to provide for patrols along the shores, for outposts to reinforce the patrols, and for a reserve close enough to reach the threatened point before any large enemy force can be debarked and can secure its position by intrenching; and in strength great enough to repel the invader. Mobile artillery of all classes must be provided, including the machine guns, which can accompany the patrols, the field and siege guns in reserve at the outpost points, and the heavy guns and howitzers mounted for transit on highways or on railways, and of power sufficient to compel shipping to keep beyond range. Armored trains with and without heavy ordnance must be provided for the patrol of exposed coasts bordered by railways. And—equally important—antiair-craft guns must be provided in numbers for protection of our fixed military utilities against destructive attacks from the air. Comparatively little has as yet been done along these lines. Plans for national defense require adequate coordination of supply of all of these means.

Projects for land defense include extensive systems of field intrenchments covered and reinforced by military obstacles. These can not be constructed until war is imminent. When war becomes imminent this work must be carried out in a minimum of time—for each threatened main enemy objective. Plans are being made for this important duty which include schedules of labor required, of transportation, and of tools and materials. It is known that while the local resources of these possibly threatened objectives are usually sufficient to provide the labor and transportation, they will not provide all of the tools and materials. Reserve supplies in large quantity of the nonperishable articles must be bought and stored. Estimates are not yet submitted to this end, solely because of the more pressing need for other war material.

Appropriations for construction of gun and mortar batteries have been made as follows:

Act of—		Act of—	
Aug. 18, 1890	$1,221,000.00	Mar. 3, 1899	$1,000,000.00
Feb. 24, 1891	750,000.00	May 25, 1900	2,000,000.00
July 23, 1892	500,000.00	Mar. 1, 1901	1,615,000.00
Feb. 18, 1893	50,000.00	June 6, 1902	2,000,000.00
Aug. 1, 1894	500,000.00	Mar. 3, 1903	2,236,425.00
Mar. 2, 1895	500,000.00	Apr. 21, 1904	700,000.00
June 6, 1896	2,400,000.00	May 27, 1908	300,000.00
Mar. 3, 1897	3,841,333.00	Mar. 3, 1909	5,064.00
Allotments from the appropriation for "National defense," act of Mar. 9, 1898	3,827,842.80	Feb. 13, 1913	100,000.00
		June 27, 1914	250,000.00
		Mar. 3, 1915	585,000.00
		July 6, 1916	2,300,000.00
May 7, 1898	3,000,000.00	Total	32,243,664.80
July 7, 1898	2,562,000.00		

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For continuing battery-construction work under way or projected an estimate of $3,675,000 is submitted.

Modernizing older emplacements.—Much remains to be done to place the older batteries in satisfactory condition for most efficient operation, including affording increased protection to magazines and platforms, altering projectile hoists to meet present requirements, widening loading platforms, platform lighting, etc.

The fortification appropriation act approved July 6, 1916, provided for this purpose the sum of $78,500. Work under this appropriation is in progress.

For continuing the most urgently needed work under this head an estimate of $102,000 is submitted.

Appropriations for modernizing older emplacements have been made as follows:

Act of—	
Mar. 3, 1905	$450,000.00
June 25, 1906	150,000.00
Mar. 2, 1907	100,000.00
May 27, 1908 (new application of funds appropriated for pneumatic-dynamite batteries)	165,261.36
Mar. 3, 1909	100,000.00
Feb. 13, 1913	25,000.00
June 27, 1914 (new application of funds appropriated for repair and protection of defenses of Pensacola, Fla.)	100,000.00
Mar. 3, 1915	100,000.00
July 6, 1916	78,500.00
Total	1,268,761.36

Fire control at fortifications.—Such progress has been made during the fiscal year as funds assigned to the Engineer Department have permitted. This appropriation is distributed by the Secretary of War among the Engineer and Ordnance Departments and the Signal Corps for expenditure.

Prior to 1905 appropriations for this work, so far as performed by the Engineer Department, were made under the title "Installation of range and position finders," as follows:

Act of—	
July 7, 1898	$150,000
May 25, 1900	150,000
Mar. 1, 1901	150,000
June 6, 1902	325,000
Mar. 3, 1903	223,500
Apr. 21, 1904	225,000
Total	1,223,500

Later appropriations have been made, under the title "Fire control at fortifications," applicable to the work of the Engineer and Ordnance Departments and the Signal Corps. The amounts appropriated and the portions thereof assigned to the Engineer Department are as follows:

Act of—	Appropriated.	Assigned to Engineer Department.	Act of—	Appropriated.	Assigned to Engineer Department.
Mar. 3, 1905	$1,000,000.00	$590,000.00	June 23, 1910	$200,000.00	$167,290.00
June 25, 1906	700,000.00	217,631.37	Mar. 4, 1911	100,000.00	
Mar. 2, 1907	900,000.00	432,784.81	June 6, 1912	100,000.00	
May 27, 1908	270,256.00	129,456.00	Mar. 3, 1915	130,000.00	
Mar. 3, 1909	247,055.00	197,972.00	July 6, 1916	600,000.00	.....
			Total	4,247,311.00	1,735,134.18

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Electrical installations.—Funds have been provided by Congress for this purpose as follows:

Act of—	
May 27, 1908	$348,888
Mar. 3, 1909	100,000
Mar. 4, 1911	50,000
Feb. 13, 1913	50,000
June 27, 1914	50,000
Mar. 3, 1915	50,000
Total	648,888

No funds for this purpose were provided in the fortification act of July 6, 1916.

For continuing the installation of this equipment at the defenses where it is considered to be most needed an estimate of $110,000 is submitted.

Searchlights.—The procurement and installation of searchlight equipment has been continued during the past fiscal year. The act of July 6, 1916, provided $226,700 for this purpose, and this amount will all be required during the present year.

During the year important improvements have been made in the type of searchlight used, by which greater illuminating power is obtained by slight modifications at small expense of the lights now on hand. To carry on the work of installation an estimate of $250,000 is submitted.

Appropriations for searchlights have been made as follows:

Act of—		Act of—	
Mar. 1, 1901 (New York Harbor)	$150,000	Mar. 4, 1911	$50,000
June 6, 1902	150,000	June 6, 1912 (reappropriated from balances of other funds)	25,000
Mar. 3, 1903	150,000	Feb. 13, 1913	100,000
Apr. 21, 1904	150,000	June 27, 1914	100,000
Mar. 3, 1905	200,000	Mar. 3, 1915	150,000
June 25, 1906	125,000	July 6, 1916	226,700
Mar. 2, 1907	210,000	Total	2,256,700
Mar. 27, 1908	210,000		
Mar. 3, 1909	210,000		
June 23, 1910	50,000		

Sites for fortifications.—For the procurement or reclamation of land for fortifications the sum of $1,400,000 was appropriated by the fortification act of July 6, 1916. Negotiations are under way for the acquisition of the land to be purchased with these funds.

Appropriations for sites for fortifications have been made as follows:

Act of—		Act of—	
Aug. 18, 1890	$500,000	June 6, 1902	$200,000
Feb. 24, 1891	500,000	Mar. 3, 1903	200,000
July 23, 1892	500,000	Apr. 21, 1904	100,000
Feb. 18, 1893	175,000	May 27, 1908	121,048
Aug. 1, 1894	150,000	Mar. 3, 1909	250,000
June 6, 1896	500,000	Feb. 13, 1913	100,000
Mar. 3, 1897	300,000	June 23, 1914	31,000
May 7, 1898	300,000	July 6, 1916	1,400,000
Mar. 3, 1899	300,000	Total	6,027,048
May 25, 1900	200,000		
Mar. 1, 1901	200,000		

For the procurement or reclamation of additional land required for fortifications an estimate of $100,000 is submitted.

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Preservation and repair of fortifications.—The modern defenses now existing represent an expenditure of approximately $30,000,000 for battery construction alone. These extensive works contain much costly machinery and ordnance material, and must be kept properly painted and repaired to be effective when needed.

In addition, there are a number of old-type fortifications along our frontiers, some of which date from the sixteenth century. Some of these are not fit for defensive purposes, but some have to-day a distinct military use. Almost all are picturesque and are valuable historically. Each year numbers of our citizens show their interest in these works by visits of inspection. In order to enable the department to preserve these old works, an additional $25,000 was included in the fortification act of July 6, 1916, the total amount appropriated in that act under this head being $250,000.

The needs of the modern defenses for annual maintenance funds are increasing. In addition, the appropriations of the last two years have been made applicable to torpedo structures as well as other fortifications, but with no corresponding increase in the amount appropriated. Consequently, the funds were practically exhausted before the close of the last fiscal year, and much desirable and needed work had to be postponed.

An estimate of $300,000 for the preservation and repair of fortifications, including torpedo structures, is submitted, and it is strongly recommended, in the interest of economy and efficient service, that this amount be appropriated.

Appropriations for preservation and repair of fortifications have been made as follows:

Act of—		Act of—	
Sept. 22, 1888	$100,000	June 25, 1906	$200,000
Mar. 2, 1889	100,000	Mar. 2, 1907	200,000
Aug. 18, 1890	80,000	May 27, 1908	225,000
Feb. 24, 1891	80,000	Mar. 3, 1909	225,000
July 23, 1892	60,000	June 23, 1910	300,000
Feb. 18, 1893	45,000	Mar. 4, 1911	300,000
Aug. 1, 1894	45,000	June 6, 1912 (including $125,000 reappropriated from balances of other funds)	300,000
Mar. 2, 1895	45,000	Feb. 13, 1913	200,000
June 6, 1896	50,000	June 27, 1914 (reappropriated from balance of another appropriation)	165,000
Mar. 3, 1897	100,000	Mar. 3, 1915	200,000
May 7, 1898	100,000	July 6, 1916	250,000
Mar. 3, 1899	100,000	Total	4,873,000
May 25, 1900	100,000		
Mar. 1, 1901	100,000		
Feb. 14, 1902	3,000		
June 6, 1902	300,000		
Mar. 3, 1903	300,000		
Apr. 21, 1904	300,000		
Mar. 3, 1905	300,000		

Appropriations for preservation and repair of torpedo structures have been made as follows:

Act of—		Act of—	
June 25, 1906	$10,000	June 6, 1912	$20,000
Mar. 2, 1907	10,000	Feb. 13, 1913	20,000
May 27, 1908	15,000	June 27, 1914	20,000
Mar. 3, 1909	20,000	Total	155,000
June 23, 1910	20,000		
Mar. 4, 1911	20,000		

Plans for fortifications and other works of defense.—Funds are required under this head for the periodical preparation and revision

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of projects and plans of works for the permanent fortification of the United States and for the preparation of plans in connection with land defenses. For this purpose the sum of $25,000 was appropriated by the act of July 6, 1916, and an estimate of $25,000 is submitted this year.

The following is a list of appropriations made to date under this head:

Act of—		Act of—	
Mar. 2, 1889	$5,000	Apr. 21, 1904	$5,000
Aug. 18, 1890	5,000	Mar. 3, 1905	5,000
Feb. 24, 1891	5,000	June 25, 1906	5,000
July 23, 1892	5,000	Mar. 2, 1907	5,000
Feb. 18, 1893	5,000	May 27, 1908	5,000
Aug. 1, 1894	5,000	Mar. 3, 1909	5,000
Mar. 2, 1895	5,000	June 23, 1910	5,000
June 6, 1896	5,000	Mar. 4, 1911	5,000
Mar. 3, 1897	5,000	June 6, 1912	5,000
May 7, 1898	5,000	Mar. 3, 1913	5,000
Mar. 3, 1899	5,000	June 27, 1914	5,000
May 25, 1900	5,000	Mar. 3, 1915	10,000
Mar. 1, 1901	5,000	June 6, 1916	25,000
June 6, 1902	5,000		
Mar. 3, 1903	5,000	Total	165,000

Supplies for seacoast defenses.—This appropriation is designed for the maintenance and repair of searchlights and electric light and power equipment for seacoast fortifications and for tools, electrical and other supplies, and appliances to be used in their operation.

The act of July 6, 1916, appropriated $40,000 for this purpose.

The sum of $40,000 is estimated as necessary for the procurement of the regular electrical supplies for the next fiscal year, and an estimate of this amount is submitted.

Appropriations for supplies for seacoast defenses have been made as follows:

Act of—		Act of—	
May 25, 1900	$25,000	June 23, 1910	$45,000
Mar. 1, 1901	25,000	Mar. 4, 1911	45,000
June 6, 1902	25,000	June 6, 1912	45,000
Mar. 3, 1903	35,000	Feb. 13, 1913	40,000
Apr. 21, 1904	35,000	June 27, 1914	40,000
Mar. 3, 1905	40,000	Mar. 3, 1915	40,000
June 25, 1906	30,000	July 6, 1916	40,000
Mar. 2, 1907	40,000		
May 27, 1908	44,500	Total	634,500
Mar. 3, 1909	40,000		

Sea walls and embankments.—The large number of seacoast reservations renders necessary a considerable expenditure of funds to prevent the washing away of valuable land by the ordinary action of the waves and to repair damages done by occasional violent storms.

To provide for work of this character now required an estimate of $93,000 is submitted.

Appropriations for sea walls and embankments, exclusive of those for particular localities, have been made as follows:

Act of—		Act of—	
Sept. 22, 1888	$117,000	Mar. 3, 1899	$2,500
June 6, 1896	17,975	May 25, 1900	50,000
Mar. 3, 1897	33,000	Mar. 1, 1901	100,000
May 7, 1898	55,000	June 6, 1902	100,000

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Act of—	
Mar. 3, 1903	$89,575
Apr. 21, 1904	99,000
Mar. 3, 1905	19,400
June 25, 1906	50,000
Mar. 2, 1907	25,000
May 27, 1908	50,000
Mar. 3, 1909	50,000
June 6, 1912 (reappropriated from balances of other funds)	$25,000
June 27, 1914	25,000
Mar. 3, 1915	27,000
Total	935,450

No funds for this purpose were appropriated by the act of July 6, 1916.

Protection of Sandy Hook Reservation, N. J.—This reservation is the site of the post of Fort Hancock and of the Sandy Hook Proving Ground. The narrow neck of land connecting the reservation with the mainland is traversed by a railroad pertaining to the Ordnance Department and by a roadway maintained by the Quartermaster Corps.

During the severe storms of the winter of 1914–15 the beach in front of the heavy riprap sea wall, which was built for the protection of this strip, was cut away and the sea wall was lowered for a part of its length. This permitted the storm waves to wash over the wall, and the water then escaped across the neck and into the Shrewsbury River, washing away the wagon road, seriously threatening and injuring the railroad, and lowering the level of the entire neck.

The preservation of this neck of land is very important for the maintenance of communication between the reservation and the mainland and also for the protection of navigation in the river.

For the purpose of repairing the worst breaks in the sea wall and restoring the fill and the railroad communication thereon funds were provided as follows:

From the appropriation for "Sea wall, Sandy Hook, N. J.," act of June 6, 1902	$13,509.86
From the appropriation for Shrewsbury River, N. J., by removing material washed in by the storm and depositing it along in the railroad embankment	8,000.00
From the appropriation for "Protecting Sandy Hook, N. J., 1916" (this appropriation having been made in the sundry civil appropriation act approved Mar. 3, 1915), for building the railroad trestle	24,632.67
Total	46,142.53

The funds thus provided were, however, insufficient to restore this neck of land and give it adequate protection. An additional sum of $60,000 was estimated for and has been appropriated by the general deficiency act of September 8, 1916. These funds will be applied to the purpose for which appropriated. As usual, in work of this character experience only can show whether more funds will or will not be required. Much will depend on the weather conditions which will prevail during the construction period.

Sea walls, defenses of Galveston, Tex.—The defensive works at Galveston are unavoidably in most exposed positions, and the level of the lands surrounding the batteries was greatly lowered by the storm of September 8, 1900. The Galveston defenses were rebuilt and repaired under an appropriation of $992,000, contained in the fortification act approved March 1, 1901. With the funds so provided, and in accordance with the plans before Congress when that appropriation was made, each individual battery was made secure against any similar storms likely to occur.

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For building a sea wall and filling up the reservation at Fort Crockett to a height above storm tides the sums of $591,046.25 and $158,953.75, respectively, were appropriated in the sundry civil acts of April 28, 1904, and June 30, 1906, aggregating $750,000.

For a sea wall and fill at Fort Travis the sum of $440,000 was provided in the fortification appropriation act approved March 3, 1909. This work has been completed, leaving a balance of $65,000, which by the fortification act of June 6, 1912, was made available for other purposes.

The cyclone of August, 1915, seriously damaged the fortifications of the defenses of Galveston, flooding the batteries, removing the riprap protection from the sea walls at Forts Travis and Crockett, and washing away much of the fill at Fort Crockett. For the repair and protection of the defenses of Galveston the sum of $303,500 was appropriated in the fortification appropriation act of July 6, 1916. This amount is intended to be applied as follows:

Urgent repairs to batteries at Forts Travis, Crockett, and San Jacinto	$15,500
Urgent repairs to sea wall, Fort Travis	12,000
Repairs and replacement of sea walls, retaining walls, and fill at Fort Crockett	276,000
Total	303,500

Sea-wall protection is also required for Fort San Jacinto. No estimate for this work is, however, submitted pending action in pursuance of the river and harbor appropriation act approved July 27, 1916, which made an appropriation for the Galveston Channel, with a proviso that no expenditures should be made therefrom until certain additional lands have been donated to the United States, and all claims to the present San Jacinto Reservation have been quieted. In accordance with an act of legislature approved March 16, 1911, the entire area claimed as pertaining to the reservation was patented to the United States by the governor on June 28, 1912. A portion of the reservation is, however, still occupied by the State quarantine station, and the present governor refuses to cede jurisdiction over the reservation unless the United States conveys to the State the land occupied by the quarantine station. Until this matter has been settled satisfactorily no estimate for improvement of the Fort San Jacinto Reservation is deemed advisable.

Submarine mines.—The act of June 6, 1902, assigned to the Artillery the purchase of torpedo material proper, leaving to the Engineer Department the erection of casemates, galleries, storehouses, and other necessary structures.

The fortification act of July 6, 1916, has provided $200,000 for the construction of torpedo structures, and work under this appropriation is now being undertaken.

For application to additional work of this character an estimate of $250,000 is submitted.

Appropriations for work under the Engineer Department, beginning with the act of June 6, 1902, have been as follows:

Act of—		Act of—	
June 6, 1902	$33,000	Mar. 3, 1909	$100,000
Mar. 3, 1903	50,000	Mar. 4, 1911	50,000
Apr. 21, 1904	87,000	Mar. 3, 1915	31,000
Mar. 3, 1905	400,000	July 6, 1916	200,000
June 25, 1906	175,000		
Mar. 2, 1907	175,000	Total	1,476,000
May 27, 1908	175,000		

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FORTIFICATIONS IN INSULAR POSSESSIONS.

Batteries.—The first appropriation for this purpose was contained in the fortification act approved April 21, 1904, and the aggregate amount appropriated to date has been $9,210,200 (including $250,000, the expenditure of which was assigned to the Chief of Ordnance). With these appropriations batteries have been constructed at Guantanamo Bay, Cuba, and Subic Bay, P. I., and construction work is still in progress at Honolulu and Pearl Harbor, Hawaii, and Manila Bay, P. I.

Appropriations for this work have been made as follows:

Act of—	Generally applicable.	Hawaiian Islands.	Philippine Islands.	Act of—	Generally applicable.	Hawaiian Islands.	Philippine Islands.
Apr. 21, 1904	$700,000			Mar. 4, 1911		$150,000	$1,169,000
Mar. 3, 1905	700,000			June 6, 1912		170,000	800,000
June 25, 1906		$260,000		Feb. 13, 1913		70,000	700,000
Mar. 2, 1907		200,000	$500,000	June 27, 1914			300,000
May 27, 1908		400,000	951,000				
Mar. 3, 1909		337,200	[1] 1,000,000	Total	$1,400,000	1,587,200	[1] 6,223,000
June 23, 1910			800,000				

[1] Including $250,000 the expenditure of which was assigned to the Chief of Ordnance.

For the construction of additional batteries in the Hawaiian Islands an estimate of $1,040,000 is submitted.

Electrical installations.—Appropriations for this work have been made as follows:

Act of—	Hawaiian Islands.	Philippine Islands.
May 27, 1908	$20,000	$115,000
Mar. 3, 1909	14,469	88,823
June 23, 1910		45,000
Mar. 4, 1911		171,962
Feb. 13, 1913	34,469	
Total	68,938	420,785

Searchlights.—Work under appropriations heretofore made for this purpose is in progress, and no additional estimate for this purpose is submitted.

Appropriations for this work have been made as follows:

Act of—	Generally applicable	Hawaiian Islands.	Philippine Islands.
Mar. 2, 1907	$30,000		
May 27, 1908		$47,500	$180,000
Mar. 3, 1909		66,000	
June 23, 1910			139,000
Mar. 4, 1911		40,100	
Feb. 13, 1913		10,800	20,600
Total	30,000	164,400	339,600

Procurement of sites.—All land at present required has been acquired.

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Appropriations for this work have been as follows:

Act of—	Hawaiian Islands.	Philippine Islands.
Apr. 21, 1904	$200,000	.....
June 25, 1906	150,000	.....
May 27, 1908	.....	$5,000
Mar. 3, 1909	.....	12,000
Total	350,000	17,000

Preservation and repair of fortifications.—An annually increasing number of fortification units is being completed and turned over to the troops in the Hawaiian and Philippine Islands, where climatic conditions tend toward rapid deterioration unless ample provision is made for the prevention thereof. Prior to the current year provision for the preservation and repair of mine-defense structures has been made under separate heads from that for other fortifications, but in the fortification act of July 6, 1916, the two classes of work have been combined in a single appropriation for each locality. For this work in the Hawaiian Islands an estimate of $12,500 is submitted, and one of $25,000 in the Philippine Islands.

Appropriations heretofore made for this work are as follows:

Act of—	Hawaiian Islands.			Philippine Islands.		
	Mine-defense structures.	Other fortifications.	Total.	Mine-defense structures.	Other fortifications.	Total.
June 23, 1910	.....	.....	.....	$1,000	$7,000	$8,000
1911	.....	.....	.....	1,000	7,000	8,000
1912	.....	$500	$500	500	8,000	8,500
1913	$500	500	1,000	750	8,000	8,750
1914	2,000	1,000	3,000	1,000	.....	1,000
1915	1,000	2,000	3,000	1,000	3,000	4,000
July 6, 1916	.....	.....	5,000	.....	.....	10,000

Land defenses.—For the construction of works of defense against landing parties in the Philippine Islands the sum of $180,000 was appropriated by the fortification appropriation act approved March 4, 1911, and the sum of $170,000 was appropriated by the fortification act of July 6, 1916. Work under these appropriations is in progress.

For similar work in the Hawaiian Islands the following appropriations have been made:

June 27, 1914	$457,000
March 3, 1915	150,000
July 6, 1916	169,000

These funds are being applied to the work as rapidly as practicable, and to permit the continuation of this work without interruption, including the construction of needed roads, an estimate of $225,000 additional is submitted.

Roads.—Where, as on an island, there is a long extent of coast on which landings of a mobile expeditionary force can be made, it is evident that it is impracticable to cover the entire coast, either by

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gunfire from fixed emplacements or by a sufficiently large mobile force at all possible landing places. The forces of the defense occupy an interior station with respect to the attacking force and the distances from such an interior point to points on the coast are necessarily shorter than the distances to be traversed by attacking parties moving in circumferential lines around the coast. Hence it is possible to defend such a possession by a comparatively small force if it can be moved rapidly to and concentrated at the point of attack. To do this, a system of roads is required, planned to meet the military needs. Incidentally, such a system meets commercial needs as well. Recent events in Europe illustrate the value of interior lines of well-constructed roads. Such a system is required in all of our outlying defenses, in Oahu, on the Isthmus of Panama, and in Luzon, particularly. Estimates have been submitted with a view of making surveys to determine location, character, and cost of such military roads in Oahu and on the Isthmus of Panama; and for Oahu, for starting construction of some of the lines for which the conditions are known. Some of these roads must be suitable for the transportation of heavy mobile artillery; some need to be only trails fitted for infantry and pack trains. To inaugurate this work in Oahu the sum of $110,000 has been included in the estimate of $225,000 for land defenses in Oahu.

Reserve equipment.—For the procurement of an adequate reserve of spare parts, etc., for the fortifications and their appliances in the insular possessions, the sums of $50,000 and $100,000, respectively, for the Hawaiian and Philippine Islands were appropriated by the act of June 27, 1914. These amounts are being applied to the purpose for which appropriated.

Electrical and other supplies.—Under appropriations heretofore made by Congress a number of electric plants and searchlights have been installed in the defensive works in the Hawaiian and Philippine Islands, and in order that the necessary supplies and materials may be furnished for the operation and maintenance as for similar equipment in this country, estimates of $2,500 and $5,000, respectively, have been submitted this year. For work of this character in the Hawaiian and Philippine Islands $2,500 and $3,500, respectively, were provided by the act of July 6, 1916, with which the supplies most urgently required will be procured.

Appropriations for this work have been made as follows:

Act of—	Hawaiian Islands.	Philippine Islands.
June 23, 1910	.....	$2,500
Mar. 4, 1911	$1,000	2,500
June 6, 1912	750	2,500
Feb. 13, 1913	750	3,000
June 27, 1914	1,000	3,000
Mar. 3, 1915	1,500	3,000
July 6, 1916	2,500	3,500
Total	7,500	20,000

Sea walls.—To permit the protection of the shore of one of the defensive sites in the Hawaiian Islands an appropriation of $21,000 was made by the act of March 3, 1915. Work under this appropriation is in progress.

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For fill in rear of a portion of the sea wall an estimate of $10,500 is submitted.

Fill, Fort De Russy.—A portion of this reservation is covered by ponds and swamps, a condition which is detrimental to the health and comfort of the garrison. For filling in these portions of the reservation an estimate of $54,000 is submitted.

Access to defense at Fort Ruger.—To provide adequate means for ready access to the defensive works at Fort Ruger the expenditure of $40,000 is required, and an estimate of this amount is submitted.

Mine-defense structures.—Work upon the mine-defense structures in the Philippine Islands under the existing project is approaching completion.

For additional work of this character required in the Hawaiian Islands an appropriation of $10,000 was made in the fortification appropriation act approved July 6, 1916, and work thereunder is in progress.

Appropriations for this work have been made as follows:

Act of—	Generally applicable.	Philippine Islands.	Hawaiian Islands.
June 8, 1898 (for Manila Harbor)		$150,000	
Mar. 2, 1907	$200,000		
May 27, 1908			$129,000
Feb. 13, 1913		50,000	
Mar. 3, 1915		17,000	
July 6, 1916			10,000
Total	200,000	217,000	139,000

Fire control.—No funds for this purpose were provided by the last fortification act.

Appropriations for this work and assignments therefrom to the Engineer Department have been made as follows:

Act of—	Appropriated.	Assigned to Engineer Department.
Mar. 2, 1907	$100,000	$439,174.75
May 27, 1908	243,000	
Mar. 3, 1909	250,000	
June 23, 1910	200,000	
June 27, 1914	55,000	
Mar. 3, 1915	15,678	
July 6, 1916	100,000	
Total	963,678	

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MILITARY STRUCTURES, PHILIPPINE ISLANDS.

The construction of a pumping plant, electric-power plant, and certain Army storehouses for military purposes in the Philippine Islands has been assigned to the Engineer Department and funds from various appropriations applied thereto. These funds being insufficient for the completion of the work, an appropriation of $154,000 for such completion was made by the sundry civil appropriation act of August 1, 1914. The structures are now practically completed.

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The following funds, in addition to those elsewhere accounted for in this report, have been applied to this work:

Electric-power plant, Corregidor Island, P. I. (sundry civil act of Mar. 4, 1911)	$154,667.00
Water and sewers at military posts, 1912 (Army act of Mar. 3, 1911)	15,500.00
Seacoast defenses, Philippine Islands and Hawaii (sundry civil acts)	16,155.55
Army storehouses, Corregidor Island, P. I. (Army act of Mar. 3, 1909)	132,443.66
Military structures, Philippine Islands (sundry civil act of Aug. 1, 1914)	154,000.00
Total	472,766.21

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MAPS, WAR DEPARTMENT.

With the $7,500 appropriated for this purpose for the fiscal year ending June 30, 1916, a number of miscellaneous military maps were printed.

These funds are also utilized in the publication of accurate maps of our fortified harbors, which, under existing regulations, are required for the use of the Coast Artillery. For continuing this work the sum of $7,500 has been appropriated for the fiscal year 1917.

Owing to the large amount of military mapping in progress and the urgent need for the prompt reproduction of maps as completed, an increased appropriation is needed for the next fiscal year, and an estimate of $10,000 is submitted:

Amount appropriated by sundry civil act approved Mar. 3, 1915	$7,500
June 30, 1916, amount expended during fiscal year	7,500
Estimate submitted for 1917–18	10,000

COLLECTION OF DATA FOR MILITARY MAPS.

One of the principal duties on which Engineer troops have been engaged during this and the last fiscal year has been the making of military surveys of the areas on which will probably be located the works needed for the defense of our frontiers. The amount of such work which has been done is quite large and it has interfered somewhat with instruction of the surveying parties in the other important duties which they would probably be called on to perform in time of war. The amount of work still to be done is very large, and arrangements have, therefore, been made with other mapping agencies of the Government, and estimates have been submitted to Congress with a view to securing in the future the assistance of such Government mapping agencies in the gathering of military information and thus reduce materially the volume of work which must be done by trained soldiers. For the purpose of reimbursing the Geological Survey for work of this character done during the current fiscal year, the sum of $35,000 was appropriated in the sundry civil appropriation act of July 1, 1916. For the continuation of this surveying and mapping, with authority to utilize, so far as practicable, the services of the Geological Survey, the Coast and Geodetic Survey, and other Government mapping agencies, an estimate of $200,000 is submitted.

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ENGINEER DEPOTS.

WASHINGTON BARRACKS.

This depot is the repository for part of the military bridge equipage of the Army; for miscellaneous military engineering tools, apparatus, supplies, and materials of all kinds required by the mobile army; for repair parts of the electrical and mechanical equipment of the seacoast fortifications; and for astronomical, surveying, drafting, and reconnaissance equipment and supplies used by the Army and by officers of the Corps of Engineers on public works, both military and civil. It purchases and issues military engineering tools and supplies and serves as an exchange for engineering instruments of all kinds, receiving them from the Army or public works, caring for them while in store, making the necessary repairs, reissuing them when required, and, so far as appropriations will permit, making purchases of such items as can not be supplied from store.

It purchases electrical lighting and power equipment for seacoast defenses, searchlights (both fixed and portable) for the seacoast defenses and for the mobile army, trench lights, flares, and special engineer equipment for the mobile army, projectile and powder hoists for the seacoast defenses, and explosives for military demolition work, this latter material being electroplated in the depot to preserve them from dampness in the field. The depot also fabricates special items of military equipment for Engineer troops, such as tool wagons, packs for mounted transportation, boats for bridge equipage, etc.

Just before the end of the fiscal year conditions on the Mexican border assumed such an aspect that the depot was directed to purchase engineer material for the Regular Army and for the National Guard to the value of approximately $1,500,000, and at the end of the fiscal year was actively engaged in this work.

During the fiscal year many instruments were repaired and all new instruments were inspected and tested before issue.

The shipments during the year have considerably exceeded those of previous years. A large number of instruments have been repaired in the instrument-repair shop. All new instruments were examined and tested there.

FORT LEAVENWORTH.

This depot is the repository for part of the military bridge equipage of the Army, as well as other tools, stores, and miscellaneous supplies. The general work of the office and storehouse comprised the care of property on hand, the purchase of supplies, receiving and issuing Engineer supplies, and the keeping of the depot accounts and records.

Electric-motor equipment for changing motive power of shops is on hand, ready for installation. This installation has been deferred owing to the absence on the Mexican border of the Engineer troops stationed at Fort Leavenworth.

VANCOUVER BARRACKS.

This depot is the repository for part of the military bridge equipage, of the Army, as well as tools, stores, and miscellaneous supplies.

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Work during the year has included the fabrication and repair of ponton equipage and the purchase and issue of materials, tools, and supplies to Engineer troops.

ENGINEER DEPOTS, SOUTHERN DEPARTMENT.

To meet the requirements of prospective military operations in the vicinity of the Mexican border, Engineer depots were established at San Antonio and El Paso and Engineer field depots at several points along the Mexican border. These depots received and issued standard equipment and supplies shipped them by the general storage and purchasing depots in other parts of the country, and as far as practicable accumulated a reserve in anticipation of future needs. The Engineer depots at San Antonio and El Paso, with the assistance of district engineer offices at St. Louis, Chicago, and other points, served as purchasing agencies for nonstandard materials necessary to meet the special requirements of the situation both for the troops and for the service of military railways. The Engineer field depots served as temporary storage depots for such material as was required for prospective operations in the localities served by them.

HONOLULU.

This depot assembles and issues property and materials for the military operations in the Hawaiian Islands, cares for property in store, makes such minor repairs to instruments as can be made locally, and obtains and issues such Engineer supplies as are required by the Infantry, Cavalry, and Artillery troops stationed in the vicinity of Honolulu. Operations during the year have been confined to these activities.

A suitable building for storage purposes is urgently needed.

MANILA.

This depot is the repository for ponton equipage and for miscellaneous tools, property, and supplies required for issue and for reserve equipment in the Philippine Department.

ENGINEER DEPOT, COROZAL, CANAL ZONE.

The Engineer depot at Corozal, Canal Zone, serves as a depot for storage of Engineer property on the Isthmus, and, in addition, forms a base of supply for materials used by field parties on mapping work. Two enlisted men, a sergeant in immediate charge of the property and a private to make repairs and prepare materials for sending out, are in continuous service on extra duty status, and parties are procured by detail or hired to handle shipments of property.

There has been constructed by Company M, Third Battalion of Engineers, out of salvaged material from Panama Canal buildings, a shed 15 by 30 feet. Property in charge of the Engineer depot has been stored in three buildings: instruments for survey parties in a new concrete building for Coast Artillery reserve materials at Corozal, Canal Zone; equipment and supplies for the mobile army and

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materials for mapping parties in the shed built by Company M, Third Battalion of Engineers, at Corozal, Canal Zone, and war reserve material for the mobile army in the abandoned pumping station at Miraflores, Canal Zone, along with Signal Corps property. Adequate facilities for proper service of an Engineer depot have not been provided.

ENGINEER DEPOTS, 1916.

Amount appropriated in Army act of Mar. 4, 1915	$25,000
June 30, 1916, amount expended during fiscal year	25,000

ENGINEER DEPOTS, 1916–17.

Amount appropriated in urgent deficiency act of July 1, 1916	$10,000
July 1, 1916, outstanding liabilities	10,000
Estimate submitted for 1918	35,000

ENGINEER EQUIPMENT OF TROOPS.

With funds appropriated under this head additions were made to the reserve supply of bridge equipage, the equipage on hand has been kept in repair, and purchases made to provide prescribed and authorized issues of tools, instruments, and supplies for the equipment of military organizations, military posts, and for military surveys.

During the year issues of the new equipment of Engineer troops were completed.

Reserve intrenching tools, as shown on page 8, Table of Organization, 1914, sufficient for nine Infantry divisions have been stored in designated depots throughout the country.

Issue of demolition equipment for Cavalry was completed during the year.

The orders now in force governing the issue of Engineer equipment to troops are as follows:

(*a*) Reconnaissance instruments for line troops, including Engineers, and for Coast Artillery when employed with mobile troops, Unit Accountability Manuals; surveying, reconnaissance, and drafting instruments for military posts; reconnaissance and drafting supplies, General Orders No. 2, War Department, 1915.

(*b*) Reserve intrenching tools for Infantry, Tables of Organization, 1914, page 8.

The foregoing orders do not cover purchase or issue of the bridge equipage, siege material, field searchlights, pile drivers, and other miscellaneous items of Engineer equipment required for use in field operations. These are purchased and issued under special instructions of the Chief of Engineers.

Circular No. 7, Bureau of Militia Affairs, May 11, 1914, prescribes the Engineer equipment for Engineer units of the Organized Militia.

Equipment, supplies, etc., purchased from this appropriation are stored at the several Engineer depots, from which they are issued to organizations, posts, and department headquarters for surveys and to the Organized Militia (at the expense of the appropriations therefor) as required.

It had long been known that the Engineer equipment of the National Guard was very deficient, and when the National Guard was called into the Federal service in June, 1916, steps were immediately

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taken to procure equipment to make up this shortage. The amount of equipment so ordered, together with that on hand, approximately equals that called for for the first year in the project for accumulation of equipment as given on page 8 of the "Proper Military Policy for the United States." An estimate is submitted to cover the Engineer equipment for the second year in accordance with the above and also to equip the second increment of the Regular Army under the national-defense act, to provide equipment for training citizen forces at training camps and educational institutions, and for the maintenance of all the equipment pertaining to this appropriation.

ENGINEER EQUIPMENT OF TROOPS, 1916.

Amount appropriated in Army act of Mar. 3, 1915	$48,000.00
Collections on account of property lost, sales, etc	674.87
Total available	48,674.87
June 30, 1916, amount expended during fiscal year	48,674.87
Amount appropriated in urgent deficiency act of July 1, 1916	200,000.00
Amount appropriated in general deficiency act of Sept. 8, 1916	300,000.00
Total available	500,000.00
July 1, 1916, outstanding liabilities	500,000.00
Estimate submitted for 1918	1,174,000.00

ENGINEER OPERATIONS IN THE FIELD.

The duties of the Corps of Engineers include many and various operations in connection with field service, such as surveying and mapping, castrametation, bridge, road, and railroad work, laying out and construction of defensive works, operation of field searchlights and other devices for battle-field illumination, and training in all Engineer field operations. In time of actual or threatened hostilities these duties are greatly increased, and the Corps of Engineers is assigned special charge within the theater of operations of the location, design, and construction of wharves, piers, landings, storehouses, hospitals, and other structures of general interest, the construction, maintenance, and repair of roads, ferries, bridges, and incidental structures, and the construction, maintenance, and operation of railroads under military control, including the construction of armored trains. In connection with the punitive expedition and operations in the vicinity of the Mexican border during the current calendar year extensive operations have been carried on by the officers of the Corps of Engineers under the direct supervision of the department commander, and extensive preparations for further operations have been made. To meet the necessary expenses of these operations the sum of $600,000 was appropriated by the urgent deficiency act of July 1, 1916, and a like amount was appropriated by the general deficiency act of September 8, 1916, these amounts being available for obligations incurred in both the fiscal years 1916 and 1917. In addition, and to meet routine requirements and to begin the accumulation of a reserve of material under this head during the current fiscal year, the sum of $100,000 was appropriated by the Army appropriation act of August 29, 1916.

For the same purposes during the fiscal year 1918 an estimate of $300,000 is submitted.

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The nature of this work required of the Corps of Engineers when an army is mobilized and concentrated in case of actual or threatened hostilities is so vital to the supply and movement of the Army that authority should be granted the Secretary of War to incur necessary obligations for this service in case of emergency, and legislation to this end is recommended in the current estimates.

"*Engineer Operations in the Field, 1916–17.*"

Amount appropriated in urgent deficiency act of July 1, 1916	$600,000
Amount appropriated in general deficiency act of Sept. 8, 1916	600,000
Total available	1,200,000
July 1, 1916, outstanding liabilities	1,200,000
Estimate submitted for 1917–18	300,000

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RIVER AND HARBOR IMPROVEMENTS.

Appropriations.—The funds with which the works for the improvement of rivers and harbors were prosecuted during the past fiscal year were derived from the appropriations made by the river and harbor act approved March 4, 1915, and the sundry civil act approved March 3, 1915, from such appropriations as have been provided by other general acts and by special acts of Congress, and from the available balances of former appropriations.

The following works are provided for by permanent appropriations: Removing sunken vessels; operating snag and dredge boats on upper Mississippi, Illinois, and Minnesota Rivers; removing obstructions in Mississippi River; gauging waters of the Mississippi River and its tributaries; examinations and surveys at South Pass, Mississippi River; maintenance of South Pass Channel, Mississippi River; operating snag boats on Ohio River; operating and care of canals, etc.; support and maintenance of the Permanent International Association of the Congresses of Navigation.

Total appropriations for rivers and harbors to July 1, 1915		$853,737,950.82
Amount appropriated by sundry civil act July 1, 1916		1,482,800.00
Amount appropriated by river and harbor act July 27, 1916		40,598,135.00
Amount appropriated by deficiency act Sept. 8, 1916		1,226.20
Permanent annual appropriations for fiscal year 1917 (including $3,000 for Permanent International Association of Congresses of Navigation)		297,600.00
		896,117,712.02
INDEFINITE APPROPRIATIONS.		
Operating and care of canals, etc. (appropriation warrants issued during fiscal year 1916)	$2,190,437.28	
Removing sunken vessels, etc. (appropriation warrants issued during fiscal year 1916)	59,843.17	
		$2,250,280.45
RELATED WORKS.		
Expenses of California Débris Commission (sundry civil act July 1, 1916)	$15,000.00	
Prevention of deposits, New York Harbor (sundry civil act July 1, 1916)	160,260.00	
		$175,260.00
Total		898,543,252.47

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Expenditures.—The total amount actually expended under the direction of the Chief of Engineers in connection with the improvement of rivers and harbors during the fiscal year ending June 30, 1916, is as follows:

Improvement of rivers and harbors (general)	$28,369,159.35
Improvement of Mississippi River under Mississippi River Commission	3,315,209.47
	31,684,368.82
Examinations, surveys, and contingencies of rivers and harbors	408,836.40
Emergencies in river and harbor works	5,606.00
Removing sunken vessels	57,122.84
Operating and care of canals	2,289,514.88
Operating snag and dredge boats on upper Mississippi, Illinois, and Minnesota Rivers	19,429.41
Removing obstructions in Mississippi, Atchafalaya, and Old Rivers	93,622.20
Gauging waters of the Mississippi River and its tributaries	9,082.54
Maintenance of South Pass Channel, Mississippi River	129,519.00
Examinations and surveys at South Pass, Mississippi River	10,195.00
Operating snag boats on the Ohio River	36,193.07
Permanent International Commission of Congresses of Navigation	1,394.60
Meeting of Permanent International Association of Navigation Congresses in United States	154.87
Prevention of deposits in New York Harbor	85,559.47
California Débris Commission (expenses)	14,977.59
Building, Engineer School for River and Harbor Instruction	919.41
Total expenditures of Government funds	34,846,406.10

Expenditures have also been made from funds contributed by States, municipalities, and private parties for improvements as follows:

Harbor at Plymouth, Mass	$9,375.17
Niagara River, N. Y	20,154.50
Sabine-Neches Canal, Tex	52,656.09
Neches River, Tex	765.67
Houston Ship Channel, Tex	17,335.91
Missouri River above Florence, Nebr	828.34
Missouri River in Quindaro Bend, Kans	[1] 6,503.04
Missouri River at Council Bluffs, Iowa	[2] 5,843.79
St. Josephs Bay, Fla	18.58
Inland Waterway from Mermentau River to Sabine River, La. and Tex	5,229.31
Tillamook Bay and Bar, Oreg	118,901.15
Nehalem Bay, Oreg	77,318.82
Siuslaw River, Oreg	30,919.72
Columbia River, near Vancouver, Wash	7,500.00
Jetty at Bandon, Oreg	8,791.20
Channel from Bay City to Tillamook, Oreg	4,992.07
Sacramento and Feather Rivers, Cal	143,793.69
Savannah River at Augusta, Ga	16,341.23
Grays Harbor, Wash	14,066.95
Red River below Fulton, Ark	18,549.70
Cold Spring Inlet, N. J	2,838.06
	562,722.99
Under Mississippi River Commission:	
Mississippi River at Delta, Miss	135,128.21
Grand total of contributed funds	697,851.20

[1] Includes $4,437.30 not reported in 1915.
[2] Includes $5,597.09 not reported in 1915.

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The river and harbor act approved March 4, 1915, contained the following provisions:

That the sum of $25,000,000 be, and the same hereby is, appropriated, out of any moneys in the Treasury not otherwise appropriated, to be immediately available and to be expended under the direction of the Secretary of War and the supervision of the Chief of Engineers, for the preservation and maintenance of existing river and harbor works, and for the prosecution of such projects heretofore authorized as may be most desirable in the interests of commerce and navigation and most economical and advantageous in the execution of the work: *Provided*, That allotments from the amount hereby appropriated shall be made by the Secretary of War upon the recommendation of the Chief of Engineers. * * * *And provided further*, That at the beginning of the next session of Congress a special report shall be made to Congress by the Secretary of War showing the amount allotted under this appropriation to each work of improvement.

The Secretary of War may, upon the recommendation of the Chief of Engineers, transfer funds heretofore appropriated or authorized for any river or harbor improvement and which will probably not be required for that improvement prior to June thirtieth, nineteen hundred and sixteen, to any other river or harbor improvement for which funds may be needed prior to June thirtieth, nineteen hundred and sixteen: *Provided*, That the funds so transferred shall be subject to the same limitation as that imposed upon the original $25,000,000, namely, to be expended only for the preservation and maintenance of existing river and harbor works and for the prosecution of such projects heretofore authorized as may be most desirable in the interests of commerce and navigation and most economical and advantageous in the execution of the work: *And provided further*, That the funds so transferred shall, as far as practicable, be limited to projects in the same or adjacent districts and shall be limited to an aggregate of $5,000,000.

Under the authority conferred by the foregoing provisions of law, the Secretary of War has, upon the recommendation of the Chief of Engineers, allotted and transferred the following-named sums to the localities indicated:

Locality.	Amount made available.		
	Total.	By transfer.	By allotment.
St. Croix River, Me.	$50,000.00	.....	$50,000.00
Portland Harbor, Me.	105,000.00	$14,000.00	91,000.00
Boston Harbor, Mass.	135,769.00	135,769.00	.....
New Bedford and Fairhaven Harbors, Mass.	56,610.00	56,610.00	.....
Harbor at Fall River, Mass.	12,000.00	.....	12,000.00
Harbor of Refuge at Point Judith, R. I.	75,000.00	58,000.00	17,000.00
Pawcatuck River, R. I. and Conn.	1,000.00	.....	1,000.00
Thames River, Conn.	14,500.00	.....	14,500.00
Connecticut River below Hartford.	30,000.00	10,000.00	20,000.00
Branford Harbor, Conn.	4,000.00	.....	4,000.00
Housatonic River, Conn.	6,000.00	.....	6,000.00
Port Chester Harbor, N. Y.	10,000.00	.....	10,000.00
Mamaroneck Harbor, N. Y.	14,800.00	3,000.00	11,800.00
East Chester Creek, N. Y.	5,000.00	4,000.00	1,000.00
Bronx River, N. Y.	100,000.00	.....	100,000.00
Harlem River, N. Y.	75,000.00	.....	75,000.00
Plattsburg Harbor, N. Y.	2,000.00	.....	2,000.00
Narrows of Lake Champlain, N. Y. and Vt.	3,000.00	.....	3,000.00
Hudson River, N. Y.	877,780.00	704,000.00	173,780.00
Rondout Harbor, N. Y.	3,000.00	.....	3,000.00
Tarrytown Harbor, N. Y.	3,000.00	.....	3,000.00
Channel in Gowanus Bay, N. Y., Bay Ridge and Red Hook Channels.	125,000.00	110,000.00	15,000.00
Newtown Creek, N. Y.	15,000.00	.....	15,000.00
Great South Bay, N. Y.	5,000.00	5,000.00	.....
Browns Creek, N. Y.	2,000.00	.....	2,000.00
Sheepshead Bay, N. Y.	5,000.00	.....	5,000.00
Huntington Harbor, N. Y.	5,000.00	.....	5,000.00
Arthur Kill, or Staten Island Sound, N. Y. and N. J.	400,000.00	25,000.00	375,000.00
Passaic River, N. J.	100,000.00	.....	100,000.00
Shrewsbury River, N. J.	18,000.00	8,000.00	10,000.00
Raritan Bay, N. J.	20,000.00	.....	20,000.00

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Locality.	Amount made available.		
	Total.	By transfer.	By allotment.
Keyport Harbor, Matawan Creek, Raritan, South and Elizabeth Rivers, Shoal Harbor and Compton Creek, and Cheesequake Creek, N. J	$24,000.00	$24,000.00	
Woodbridge Creek, N. J	6,000.00	6,000.00	
Delaware River, Pa. and N. J., above Lalor St., Trenton, N. J	6,612.50	6,612.50	
Delaware River, Pa. and N. J., from Philadelphia to the sea	1,000,000.00		$1,000,000.00
Wilmington Harbor, Del	45,000.00	45,000.00	
Cold Spring Inlet, N. J	20,000.00		20,000.00
Absecon Inlet, N. J	60,000.00	60,000.00	
Raccoon Creek, N. J	5,000.00	5,000.00	
Appoquinimink, Murderkill, and Mispillion Rivers, Del	15,000.00	15,000.00	
Inland waterway between Rehoboth Bay and Delaware Bay, Del	76,000.00	41,000.00	35,000.00
Broadkill River, Del	5,000.00	5,000.00	
Tuckerton Creek, N. J	5,000.00	5,000.00	
Inland waterway, Chincoteague Bay, Va., to Delaware Bay, Del	1,000.00		1,000.00
Elk and Little Elk Rivers, Md	11,000.00	5,000.00	6,000.00
Harbors at Rockhall, Queenstown, Claiborne, and Cambridge, and Chester, Choptank, Warwick, Pocomoke, La Trappe, Wicomico, and Manokin Rivers, and Tyaskin Creek, Md	36,800.00	35,800.00	1,000.00
Corsica River, Md	4,800.00	4,800.00	
Potomac River, at Washington, D. C	20,000.00	20,000.00	
York, Mattaponi, and Pamunkey Rivers, Va	5,000.00	5,000.00	
Rappahannock River, Va	8,000.00	8,000.00	
James River, Va	50,000.00	11,000.00	39,000.00
Pagan River, Va	2,000.00		2,000.00
Appomattox River, Va	5,000.00	5,000.00	
Waterway from Norfolk, Va., to Sounds of North Carolina	5,000.00		5,000.00
Waterway from Norfolk, Va., to Beaufort Inlet, N. C	400,000.00	174,000.00	226,000.00
Scuppernong River, N. C	2,900.00		2,900.00
Shallowbag Bay, N. C	2,000.00		2,000.00
Fishing Creek, N. C	1,000.00		1,000.00
Pamlico and Tar Rivers, N. C	35,800.00		35,800.00
Bay River, N. C	1,900.00		1,900.00
Contentia Creek, N. C	1,000.00		1,000.00
Smiths Creek, N. C	1,400.00		1,400.00
Neuse and Trent Rivers, N. C	22,500.00		22,500.00
Waterway from Pamlico Sound to Beaufort Inlet, N. C	9,000.00		9,000.00
Beaufort Harbor, N. C	17,000.00		17,000.00
Beaufort Inlet, N. C	10,000.00		10,000.00
Waterway connecting Core Sound and Beaufort Harbor, N. C	2,000.00		2,000.00
Harbor at Morehead City, N. C	3,800.00		3,800.00
New River, N. C., including inland waterways between Beaufort Harbor and New River and between New River and Swansboro	37,300.00		37,300.00
Cape Fear River above Wilmington, N. C. (locks and dams)	271,000.00		271,000.00
Cape Fear River at and below Wilmington, N. C	150,000.00		150,000.00
Shallotte River, N. C	1,100.00		1,100.00
Waccamaw River, N. C. and S. C	52,000.00		52,000.00
Winyah Bay, S. C	70,000.00	55,050.00	14,950.00
Santee, Wateree, and Congaree Rivers, S. C	15,000.00		15,000.00
Charleston Harbor, S. C	5,150.00	5,150.00	
Savannah Harbor, Ga. (26-foot project)	235,000.00	50,000.00	185,000.00
Savannah River below Augusta, Ga	15,000.00		15,000.00
Waterway from Savannah, Ga., to Beaufort, S. C	8,000.00	5,000.00	3,000.00
Sapelo Harbor, Ga	2,000.00		2,000.00
Altamaha, Oconee, and Ocmulgee Rivers, Ga	40,000.00		40,000.00
Brunswick Harbor, Ga	30,000.00		30,000.00
Fancy Bluff Creek, Ga	2,000.00		2,000.00
St. Marys River, Ga. and Fla	3,000.00	3,000.00	
Channel between St. Johns River and Cumberland Sound, Ga. and Fla	2,500.00		2,500.00
St. Johns River, Fla.:			
Jacksonville to the ocean	435,000.00		435,000.00
Jacksonville to Palatka	10,000.00		10,000.00
Palatka to Lake Harney	10,000.00		10,000.00
Indian River, Fla	10,000.00		10,000.00
Caloosahatchee River, Fla	5,000.00		5,000.00
Manatee River, Fla	35,000.00	35,000.00	
St. Petersburg Harbor, Fla	1,500.00	1,500.00	
Hillsboro Bay, Fla	160,000.00		160,000.00
Channel from Clearwater Harbor to Tampa Bay, Fla	3,000.00		3,000.00
Anclote River, Fla	5,000.00	5,000.00	
Removing the water hyacinth in the State of Florida	5,000.00		5,000.00
Carrabelle Bar and Harbor, Fla	20,000.00		20,000.00
Apalachicola Bay, Fla	25,000.00		25,000.00
Apalachicola River, Fla	30,000.00		30,000.00
Flint River, Ga	40,000.00		40,000.00
Chattahoochee River, Ga. and Ala	75,000.00		75,000.00
St. Andrews Bay, Fla	25,000.00		25,000.00
Choctawhatchee River, Fla. and Ala	40,000.00	14,300.00	25,700.00

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Locality.	Amount made available.		
	Total.	By transfer.	By allotment.
Holmes River, Fla	$5,000.00		$5,000.00
Narrows in Santa Rosa Sound, Fla	5,000.00		5,000.00
Blackwater River, Fla	5,000.00		5,000.00
Harbor at Pensacola, Fla	25,000.00		25,000.00
Alabama River, Ala	77,000.00		77,000.00
Coosa River, Ga. and Ala.:			
Lock in Dam 4 and Dam 5	216,000.00		216,000.000
Rome, Ga., to Lock 4, Ala	50,000.00		50,000.00
Mobile Harbor, Ala	127,000.00	$20,000.00	107,000.00
Mobile Bar, Ala	10,000.00		10,000.00
Tombigbee River, Ala.:			
Mouth to Demopolis, Ala	42,500.00		42,500.00
Demopolis, Ala., to Walkers Bridge, Miss	6,300.00		6,300.00
Pascagoula Harbor, Miss	20,000.00		20,000.00
Pascagoula River, Miss	10,300.00		10,300.00
Gulfport Harbor and Ship Island Pass, Miss	77,500.00		77,500.00
Wolf and Jordan Rivers, Miss	6,250.00		6,250.00
Pearl River below Rockport, Miss	11,000.00		11,000.00
Southwest Pass, Mississippi River	400,000.00		400,000.00
South Pass Channel, Mississippi River	50,000.00		50,000.00
Bayou Plaquemine, La	20,000.00		20,000.00
Bayou Teche, La	10,000.00		10,000.00
Waterway, Franklin to Mermentau, La	5,000.00		5,000.00
Waterway, Mermentau River to Sabine River, La. and Tex	5,000.00		5,000.00
Calcasieu River, La	3,000.00		3,000.00
Bogue Falia, Bayou Manchac, and Amite, Chefuncte, and Tickfaw Rivers, La	5,000.00		5,000.00
Bayou Vermilion and Mermentau River, La., including Bayou Plaquemine Brule	8,000.00		8,000.00
Removal of water hyacinth in Mississippi, Louisiana, and Texas	20,000.00		20,000.00
Bayou Terrebonne, La	25,000.00		25,000.00
Atchafalaya River, La	20,000.00		20,000.00
Bayou Grossetete, La	3,000.00		3,000.00
Galveston Channel, Tex	100,000.00		100,000.00
Channel from Galveston Harbor to Texas City, Tex	100,000.00		100,000.00
Channel to Port Bolivar, Tex	40,000.00		40,000.00
Houston Ship Channel, Tex	200,000.00		200,000.00
West Galveston Bay and mouths of adjacent streams, Tex	20,000.00		20,000.00
Inland waterway on coast of Texas:			
West Galveston Bay-Brazos River Section	20,000.00		20,000.00
Brazos River-Matagorda Bay Section	40,000.00		40,000.00
Aransas Pass-Pass Cavallo Section	45,000.00		45,000.00
Guadalupe River Section	15,000.00		15,000.00
Mouth of Brazos River, Tex	30,000.00		30,000.00
Brazos River, Tex.:			
Velasco to Old Wahington	10,000.00		10,000.00
Old Washington to Waco	200,000.00		200,000.00
Port Aransas, Tex	180,000.00		180,000.00
Channel from Aransas Pass to Corpus Christi, Tex	15,000.00		15,000.00
Sabine Pass and Port Arthur Canal, Tex	330,000.00		330,000.00
Sabine-Neches Canal, Tex	5,000.00		5,000.00
Trinity River, Tex.:			
Open-channel work	25,000.00		25,000.00
Completion of instrumental survey	12,000.00		12,000.00
Cypress Bayou, Tex. and La	5,000.00		5,000.00
Red River above Fulton, Ark., to mouth of Washita River	40,000.00		40,000.00
Red River below Fulton, Ark	35,000.00		35,000.00
Ouachita River, Ark. and La.:			
Locks and dams	111,000.00		111,000.00
Open-channel work to Camden	25,000.00		25,000.00
Bayous Bartholomew, Maçon, D'Arbonne, and Corney, and Boeuf and Tensas Rivers, La	4,000.00		4,000.00
Yazoo River and tributaries, Miss	15,000.00		15,000.00
Big Sunflower River, Miss	104,000.00		104,000.00
Arkansas River, Ark	259,350.00		259,350.00
White River, Ark	14,000.00		14,000.00
Cache River, Ark	3,000.00		3,000.00
Black and Current Rivers, Ark. and Mo	24,000.00		24,000.00
St. Francis and L'Anguille Rivers, and Blackfish Bayou, Ark	8,000.00		8,000.00
Mississippi River:			
Between mouths of Ohio and Missouri Rivers	300,000.00		300,000.00
Mouth of Missouri River to Minneapolis, Minn	1,075,000.00	124,890.00	950,110.00
St. Paul to Minneapolis, Minn	140,000.00	25,488.00	114,512.00
Brainerd to Grand Rapids, Minn	6,000.00	6,000.00	
Warroad Harbor and River, Minn	2,000.00	2,000.00	
Zippel Bay, Lake of the Woods, Minn	1,000.00	1,000.00	
Missouri River:			
Kansas City to mouth	1,000,000.00	69,000.00	931,000.00
Kansas City to Sioux City	50,000.00	50,000.00	
Sioux City to Fort Benton	50,000.00	50,000.00	

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Locality.	Amount made available.		
	Total.	By transfer.	By allotment.
Osage River, Mo.	$7,500.00		$7,500.00
Gasconade River, Mo.	15,000.00		15,000.00
Cumberland River below Nashville, Tenn.	378,000.00	$40,000.00	338,000.00
Tennessee River, Tenn., Ala., and Ky.:			
Above Chattanooga	164,000.00	3,219.00	160,781.00
Between Florence and Riverton, Ala.	100,000.00		100,000.00
Below Riverton	336,000.00	150,000.00	186,000.00
French Broad River, Tenn.	30,000.00		30,000.00
Monongahela River, Pa.	211,200.00		211,200.00
Pittsburgh Harbor, Pa.	7,500.00		7,500.00
Ohio River:			
Open-channel work	310,000.00		310,000.00
Locks and dams	3,666,000.00	177,043.50	3,490,956.50
Big Sandy River, for construction of regulating works at the mouth	28,000.00		28,000.00
Ashland Harbor, Wis.	15,000.00		15,000.00
Ontonagon Harbor, Mich.	8,000.00		8,000.00
Harbor of Refuge, Keweenaw Point, Mich.	50,000.00		50,000.00
Waterway across Keweenaw Point, Mich.	25,000.00		25,000.00
Harbor of Refuge, Grand Marais, Mich.	10,000.00		10,000.00
Harbor at Manistique, Mich.	2,028.50		2,028.50
Menominee Harbor and River, Mich. and Wis.	7,500.00		7,500.00
Two Rivers Harbor, Wis.	12,000.00		12,000.00
Port Washington Harbor, Wis.	5,000.00		5,000.00
Milwaukee Harbor, Wis.	15,000.00		15,000.00
Racine Harbor, Wis.	150,000.00	150,000.00	
Kenosha Harbor, Wis.	25,000.00		25,000.00
Waukegon Harbor, Ill.	10,000.00		10,000.00
Fox River, Wis.	20,000.00		20,000.00
Chicago Harbor, Ill.	500,000.00	200,000.00	300,000.00
Chicago River, Ill.	20,000.00		20,000.00
Calumet Harbor, Ill.	18,000.00		18,000.00
Calumet River, Ill. and Ind.	22,000.00		22,000.00
Indiana Harbor, Ind.	150,000.00		150,000.00
Illinois River, Ill.	50,000.00		50,000.00
St. Joseph Harbor, Mich.	5,000.00	5,000.00	
South Haven Harbor, Mich.	8,300.00	8,300.00	
Saugatuck Harbor, Mich.	3,500.00	3,500.00	
Arcadia Harbor, Mich.	3,000.00		3,000.00
Holland Harbor, Mich.	3,600.00	3,600.00	
Grand Haven Harbor, Mich.	50,000.00	40,000.00	10,000.00
Grand River, Mich.	4,200.00	4,200.00	
Muskegon Harbor, Mich.	9,500.00	9,500.00	
Ludington Harbor, Mich.	9,300.00	9,300.00	
Frankfort Harbor, Mich.	3,400.00	3,400.00	
Charlevoix Harbor, Mich.	2,700.00	2,700.00	
Ship channel connecting waters of Great Lakes between Chicago, Duluth, and Buffalo	70,000.00	20,000.00	50,000.00
Black River, Mich., at Port Huron	5,000.00		5,000.00
Alpena Harbor, Mich.	5,000.00		5,000.00
Harbor of Refuge, Harbor Beach, Mich.	200,000.00	129,200.00	70,800.00
St. Marys River, Mich. (fourth lock)	1,006,000.00	1,006,000.00	
Toledo Harbor, Ohio	35,000.00	35,000.00	
Sandusky Harbor, Ohio	5,000.00		5,000.00
Huron Harbor, Ohio	3,000.00		3,000.00
Cleveland Harbor, Ohio	92,000.00	92,000.00	
Conneaut Harbor, Ohio	195,000.00	132,500.00	62,500.00
Erie Harbor, Pa.	30,000.00	20,000.00	10,000.00
Buffalo Harbor, N. Y.	187,375.00	187,375.00	
Charlotte Harbor, N. Y.	12,000.00		12,000.00
Lake Erie entrance to Black Rock Harbor and Erie Basin, N. Y.	16,000.00	10,000.00	6,000.00
Oswego Harbor, N. Y.	100,000.00	35,000.00	65,000.00
Los Angeles Harbor, Cal.	75,000.00	29,000.00	46,000.00
San Francisco Harbor, Cal.	12,000.00		12,000.00
Oakland Harbor, Cal.	80,000.00		80,000.00
San Pablo Bay, Cal.	15,000.00		15,000.00
Humboldt Bay, Cal.	350,000.00	200,000.00	150,000.00
Petaluma Creek and Napa River, Cal.	15,000.00		15,000.00
Sacramento and Feather Rivers, Cal. (improvement for navigation)	60,000.00	30,000.00	30,000.00
Sacramento and Feather Rivers, Cal. (work of California Débris Commission)	140,000.00		140,000.00
Coquille River, Oreg.	76,000.00		76,000.00
Coos Bay, Oreg.	70,000.00		70,000.00
Coos River, Oreg.	3,000.00		3,000.00
Siuslaw River, Oreg.	117,500.00		117,500.00
Yaquina River, Oreg.	3,000.00		3,000.00
Nehalem Bay, Oreg.	116,175.00		116,175.00
Snake River, Oreg., Wash., and Idaho	20,000.00		20,000.00
Upper Columbia River, above Celilo Falls to mouth of Snake River, Oreg. and Wash.	37,000.00		37,000.00

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Locality.	Amount made available.		
	Total.	By transfer.	By allotment.
Mouth of Columbia River, Oreg. and Wash.	$1,500,000.00	.....	$1,500,000.00
Columbia and Lower Willamette Rivers, below Portland, Oreg.	450,000.00	$38,443.00	411,557.00
Willamette and Yamhill Rivers, above Portland, Oreg.	25,000.00	.....	25,000.00
Cowlitz and Lewis Rivers, Wash.	15,000.00	.....	15,000.00
Clatskanie River, Oreg.	1,000.00	.....	1,000.00
Grays Harbor and Bar, Wash.	460,000.00	75,000.00	385,000.00
Waterway connecting Port Townsend Bay and Oak Bay, Wash.	15,000.00	13,750.00	1,250.00
Waterway connecting Puget Sound and Lakes Union and Washington	17,500.00	.....	17,500.00
Columbia River between Bridgeport and Kettle Falls, Wash.	10,000.00	.....	10,000.00
Kahului Harbor, Hawaii	10,000.00	.....	10,000.00
Honolulu Harbor, Hawaii	62,500.00	.....	62,500.00
San Juan Harbor, P. R.	8,000.00	.....	8,000.00
Mississippi River Commission	4,000,000.00	.....	4,000,000.00
Examinations, surveys, etc.	550,000.00	.....	550,000.00
Amount reserved for contingencies	1,185,000.00	.....	1,185,000.00
	30,000,000.00	5,000,000.00	25,000,000.00

A tabular statement giving the details of the transfers indicated in the above table is printed in the Annual Report for 1915, pages 39–42.

Estimates.—The following estimates are submitted by the Chief of Engineers for the fiscal year ending June 30, 1918:

Rivers and harbors (general, including examinations, surveys, and contingencies)	$31,123,000
Under continuing contracts	1,005,000
Under California Débris Commission (expenses)	18,000
Prevention of deposits in New York Harbor	11,500

THE BOARD OF ENGINEERS FOR RIVERS AND HARBORS.

Section 3 of the river and harbor act of June 13, 1902, provided for the organization in the office of the Chief of Engineers, by detail from time to time from the Corps of Engineers, of a board of five Engineer officers (later increased to seven) whose duties shall be fixed by the Chief of Engineers, and to whom shall be referred for consideration and recommendation, in addition to any other duties assigned, so far as in the opinion of the Chief of Engineers may be necessary, all reports upon examinations and surveys provided for by Congress, and all projects or changes in projects for works of river and harbor improvements theretofore or thereafter provided for. And in the consideration of such works and projects the board shall have in view the amount and character of commerce existing or reasonably prospective which will be benefited by the improvement, and the relation of the ultimate cost of such work, both as to cost of construction and maintenance, to the public commercial interests involved, and the public necessity for the work and propriety of its construction, continuance, or maintenance at the expense of the United States. It is further the duty of the board, upon request to the Chief of Engineers by the Committee on Commerce of the Senate or the Committee on Rivers and Harbors of the House of Representatives, in the same manner to examine and report through the Chief of Engineers upon any projects heretofore adopted by the Government or upon which appropriations have been made and to report upon the desirability of continuing the same or upon any modifications thereof which may

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be deemed desirable. This provision of the law was extended by act of March 3, 1905, to require the board upon request of the committees of Congress specified above, to examine and review surveys as well as projects provided for by acts or resolutions prior to the river and harbor act of June 13, 1902, and it was further modified by the act of March 2, 1907, to include consideration of any examination or survey made pursuant to any act or resolution of Congress.

Section 13 of the act of March 3, 1909, increased the scope of preliminary examinations and surveys by providing that every report therein ordered shall contain such data as it may be practicable to secure regarding (first) the establishment of terminal and transfer facilities, (second) the development and utilization of water power for industrial and commercial purposes, and (third) such other subjects as may be properly connected with such project. It further provided that the investigation and study of these questions may, upon review by the board, "when called for as now provided by law, be extended to any work of improvement now under way and to any locality the examination and survey of which has heretofore been, or may hereafter be, authorized by Congress." Section 6 of the same act requires the board to pass upon all modifications in plan and location involved in the reconstruction of any lock, canal, canalized river, or other work for the use and benefit of navigation, for which expenditures are authorized by that section.

The provisions relating to terminal and transfer facilities, water power, etc., were renewed in the act of June 25, 1910, and extended to apply to all examination and survey reports hereafter provided for. The required investigation of these questions was considerably amplified by the act of July 25, 1912. The same act provided that the board shall consist of seven members, a majority of whom shall be of rank not less than lieutenant colonel.

At the end of the fiscal year the board was composed of the following members, viz, Col. Frederic V. Abbot; Col. John Biddle; Col. Harry Taylor; Col. Henry C. Newcomer; Lieut. Col. E. Eveleth Winslow; Lieut. Col. Clement A. F. Flagler; and Lieut. Col. Charles Keller.

The changes of membership during the year were:

October 1, 1915, Col. Beach and Maj. Johnston relieved; Col. Biddle and Lieut. Col. Flagler detailed.

March 9, 1916, Col. Black relieved, and Lieut. Col. Keller detailed.

Under the provisions of the acts of June 25, 1910, February 27, 1911, July 25, 1912, March 4, 1913, and March 4, 1915, all reports submitted in compliance with those acts during the year have been referred to the board for consideration and recommendation. In addition, a number of subjects have been presented to it for report in accordance with resolutions of the Committee on Rivers and Harbors of the House of Representatives and the Committee on Commerce of the Senate. The reports rendered by the board from time to time in response to legislative action have been duly presented to Congress. During the year the board also gave consideration to a number of other matters referred to it by the Chief of Engineers, United States Army, for its views and recommendations. Since the recommendations of the board on the worthiness of a proposed project for river and harbor improvement are based on the probable returns to the people of the United States which would re-

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sult from the improvement desired, the economic questions involved in the opening of proposed routes for transportation by water are given careful study. There are two general phases of this question. The first when the proposed water route serves territory otherwise lacking transportation. The second when the territory is served more or less adequately by railways. It is evident that the fixed costs of water transportation must enter most conclusively in the second. In this connection there has arisen a question of the economic value of waterways of small width and depth. The practicability of developing any commerce of importance on waterways of such restricted dimensions appears questionable and steps have therefore been taken to secure additional information bearing on this question. Inquiries are being made as to the actual conditions of navigation on these waterways, and experiments have been undertaken to ascertain the resistance to movement of boats in channels of various dimensions. The results of the investigation will be given in a future report.

The work accomplished by the board during the year and the status of its operations from its organization up to the close of the fiscal year are shown by the following table:

Authority for investigation.	Number of investigations ordered.	Total number completed at close of preceding fiscal year.	Number completed during year ending June 30, 1916.	Number remaining to be completed.
Act of—				
June 13, 1902	170	170	.....	.....
Mar. 3, 1905	176	176	.....	.....
June 28, 1906	2	2	.....	.....
Mar. 2, 1907	200	200	.....	.....
May 28, 1908	1	1	.....	.....
Mar. 3, 1909	274	274	.....	.....
June 25, 1910	187	185	2	.....
Feb. 27, 1911	90	87	2	1
July 25, 1912	226	202	13	11
Mar. 4, 1913	122	103	8	11
Mar. 4, 1915	219	5	137	77
Resolutions of congressional committees	138	127	5	6
Concurrent resolutions of Congress	1	1	.....	.....
Miscellaneous cases referred by the Chief of Engineers, United States Army	57	54	3	.....
Senate resolutions	1	.....	1	.....
Total	1,864	1,587	171	106

Number of hearings given at the office of the board during the year 46

Number of public hearings held elsewhere and inspections made during the year 6

Expenses of the board during the year $20,906.91

Estimated cost of projects recommended by the board from its organization to June 30, 1916 ..... $360,322,288.59

Estimated cost of projects adopted by Congress $256,938,701.51

Details of the operations of the board during the fiscal year will be found in the report of the board. (See p. 1859.)

Status of works.—Statements derived from the reports of the officers in charge of the various works and given herewith set forth the condition of each improvement and the extent of the work performed during the past fiscal year.

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W. M. BLACK,
Chief of Engineers, United States Army.

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REPORT OF THE CHIEF OF ORDNANCE.

WAR DEPARTMENT,
OFFICE OF THE CHIEF OF ORDNANCE,
October 1, 1916.

SIR: I have the honor to submit the following report on the principal operations of the Ordnance Department during the past fiscal year, together with certain remarks as to its interests and necessities.

* * * * * * *

The total amount of the appropriations and allotments for the fiscal year 1916 was $25,508,348.03. The total amounts with which the appropriations were credited in accordance with law from sales. transfers, etc., was $638,172.69. The total payments made by disbursing officers and by Treasury settlements during the year amounted to $12,766,698.57. The total sales of condemned stores during the year amounted to $112,355.35, all of which was credited on the books of the Treasury Department to "Ordnance material (proceeds of sales)." The total sales to other parties covered into the Treasury Department to the credit of the fund "Miscellaneous receipts" amounted to $14,648.38. The total amount to the credit of disbursing officers on June 30, 1916, was $2,092,353.53, and the total amount in the Treasury on the same date was $10,345,012.04.

FUNDS ON HAND AT THE BEGINNING AND CLOSE OF THE FISCAL YEAR.

The principal amounts on hand at the beginning of the year pertained to the following appropriations:

Field artillery for Organized Militia, 1914–1916	$1,399,718.03
Field artillery for Organized Militia, 1915–1917	2,089,707.03
Ammunition for field artillery for Organized Militia, 1915–1917	2,859,505.77
Fortifications in insular possessions	976,657.06
Armament of fortifications	5,323,966.35

The status of these appropriations at the close of the fiscal year will be seen by reference to the tabular statement.

The principal amounts on hand at the close of the fiscal year pertained to the following appropriations:

Ordnance stores and supplies, 1916 and 1917	$871,564.07
Field artillery for Organized Militia, 1915–1917	1,840,379.13
Ammunition for field artillery for Organized Militia, 1915–1917	1,534,826.34
Arming and equipping the Militia	438,895.11
Armament of fortifications	3,166,512.41

The balances under the appropriations "Field artillery for Organized Militia, 1915–1917" and "Ammunition for field artillery for Organized Militia, 1915–1917" are available for the fiscal year 1917.

Of the above amounts reported on hand at the close of the fiscal year the greater portion in nearly every case had been allotted to meet outstanding obligations. The available balances under the above-named appropriations at the close of the fiscal year are as follows:

Ordnance stores and supplies, 1916 and 1917	$44,218.30
Field artillery for Organized Militia, 1915–1917	60,930.95
Ammunition for field artillery for Organized Militia, 1915–1917	185,733.71
Arming and equipping the Militia	24,521.01
Armament of fortifications	371,783.46

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TRANSFERS AND SALES OF SERVICEABLE ORDNANCE STORES.

The value of ordnance stores transferred to the executive departments and the Organized Militia during the last fiscal year, for which settlement was made directly or by Treasury settlement, amounted to $414,372.84. Of this amount $229,393.43 was on account of transfers to the Navy Department; $111,177.36 on account of transfers to the Marine Corps; $66,581.45 on account of transfers to other executive departments; and $7,220.60 on account of transfers to the Organized Militia.

The practice of advancing militia funds to this department directly at the beginning of the year, so that the procurement of the stores required may be inaugurated, mentioned in previous reports, has worked satisfactorily and is being continued. A similar practice is also followed in connection with Navy funds.

In other cases settlement is made directly or by Treasury settlement, the money received being taken up in the fund "Replacing ordnance and ordnance stores," and remaining available during the year in which the corresponding stores were transferred and the following year.

The total transfers and sales amounted to $765,176.92.

PAYMENTS.

The total payments made by disbursing officers amounted to $12,505,066.60, and by Treasury settlements to $261,631.97; a total of $12,766,698.57.

The amounts of disbursements made at the principal arsenals and in the Ordnance Office during the fiscal year are as follows:

Frankford Arsenal	$3,799,185.09
Rock Island Arsenal	3,416,428.60
Springfield Armory	683,036.78
Picatinny Arsenal	775,291.22
Watervliet Arsenal	741,675.23
Ordnance Office	1,101,184.63

AMOUNTS COVERED INTO THE SURPLUS FUND.

The principal amounts covered into the surplus fund of the Treasury were:

Small-arms target practice, 1913 and 1914	$1,758.68
Manufacture of arms, 1913 and 1914	844.16
Field artillery for Organized Militia, 1913 and 1914	896.41
Replacing and repairing ordnance property at Gulf forts	10,690.41
Armament of fortifications	13,531.51

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CASH REWARDS FOR EMPLOYEES.

In previous annual reports reference has been made to the passage of an act authorizing the payment of cash rewards for the most valuable suggestions submitted by employees, and in my last report a table was submitted showing the payments made since the passage

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of that act. That table is repeated below, including the data for the fiscal year 1916:

	Number of meritorious suggestions.	Total amount paid.	Average for suggestion.
Oct. 1, 1912, to June 30, 1913	12	$148.46	$12.37
July 1, 1913, to June 30, 1914	7	169.36	24.19
July 1, 1914, to June 30, 1915	8	337.46	42.18
July 1, 1915, to June 30, 1916	24	1,545.44	64.19

It will be noted that the total paid and the average amount for each suggestion have increased each year since the law went into effect.

OPERATION OF LIABILITY ACT.

A table of data showing the operation of this act was given in my last annual report. That table is repeated below with data for the fiscal year 1916 added:

Year.	Total injured.	Absent on account of injury.							Amount paid on account of disability.	Total number of employees.
		Total.	0 to 5 days.	5 to 10 days.	10 to 15 days.	15 to 20 days.	20 to 25 days.	25 days and over.		
1909	286	236	87	33	13	44	13	46	$3,714.70	6,628
1910	372	284	78	37	19	47	39	64	11,541.15	6,037
1911	518	326	115	29	12	47	43	80	15,218.85	5,444
1912	612	358	131	29	11	65	43	79	15,865.99	5,317
1913	800	441	178	44	17	64	48	90	18,376.30	5,305
1914	1,518	566	229	75	37	101	34	90	18,631.92	6,127
1915	1,956	630	281	58	26	88	63	114	25,152.99	7,143
1916	1,765	496	228	46	24	77	32	89	27,966.36	6,242
Total	7,827	3,337	1,327	351	159	533	315	652	136,468.26	.....

Considering only those absent over 15 days, and therefore entitled to payment on account of the injury sustained, it will be noted that the average payment for each injury has varied from year to year, but the tendency is upward, being $36.06 in 1909, $84.84 in 1912, $94.92 in 1915, and $142.68 in 1916.

A new law embodied in the act approved September 7, 1916, has taken the place of the former law for the compensation of injured employees. It has been too recently enacted for any experience to have been had with its operation, but its provisions give promise of being much fairer both to the employees and to the Government than the previously existing law, under which there was an incentive to extend to at least 15 days the period of disability, since no compensation was allowed for any less period; and there was an incentive not to shorten a period after it had reached 15 days, since full compensation was allowed beyond that time, up to a year. The new act shortens the period of disability necessary for securing pecuniary compensation to 3 days, and makes the compensation such a percentage of the employee's full pay, instead of the full pay itself, as to furnish an incentive for returning to the full-pay status. In

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other words, the loss arising from disability is not imposed upon either the Government or the employee entirely, but is divided between them. There are other advantageous features of the new act.

SCIENTIFIC MANAGEMENT.

The Army appropriation act of March 4, 1915, prohibited the making of time studies and the payment of premiums, as far as work done under that act was concerned. This operated to stop time studies, since these were made under the direction of officers who were paid out of the Army act appropriations; but as most of the premiums which had been paid in the department had been paid from funds appropriated in the fortifications act, it had little effect upon these. At its last session, however, Congress placed the restrictive legislation not only upon the Army appropriation bill, but also upon the other supply bills affecting this department, so that time studies and premium payments are now effectively forbidden. A time study is a scientific method for determining the best order and sequence in which a given piece of work should be performed, and for ascertaining the time which it ought reasonably to be expected to take; so as to permit the setting of a fair rate of compensation for the job. The reliability of the method depends upon the degree to which the scientific character which it ought to have is attained. The restrictive legislation interferes with the scientific character of the method, by prohibiting the division of a job into component parts for separate timing, but it does not abolish the method altogether, and a less perfect method of rate setting than the time study is therefore still possible.

A premium is a means of payment of a workman for output, with an assured minimum of his regular wage. The employment of this means has been prohibited, but the Comptroller of the Treasury has decided that the piecework method of payment for output, which makes the compensation correspond with the production, but without an assured minimum, is not prohibited, and is therefore still available. Piecework has prevailed to a large extent in the Ordnance Department for many years, and is still pursued. At the Watertown Arsenal, where there is not much repetition work, there has heretofore been little piecework, and the compensation for output has been in the form of premiums, which are now forbidden. With the assistance of such time studies as have been made in the past it will be possible to carry on a good deal of this work under the piecework system, and this possibility is under study. In the meantime premiums have ceased, to the expressed dissatisfaction of a number of the employees. If a good method of rate setting is available it does not make much difference whether the stimulus to extra earnings is afforded by the piecework, the premium, the bonus, or any other system of payment; and if such stimulus is to be avoided, and payment made altogether irrespective of the output, it must be by the prohibition altogether of payment for output.

LEAVES OF ABSENCE.

The naval appropriation act approved August 29 last extends the leave period of 15 days with pay, theretofore granted, to 30 days for the employees of this department. In addition to the statutory leave

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thus granted, the employees receive pay each year, without work, for 7 legal holidays and for about 11 Saturday afternoons during the summer season. Therefore, under the new act they will receive pay for some 42½ days per year without work. Under the rule of paying the same daily wage as that of the vicinity for work of like character a Government employee will, therefore, receive about 16 per cent more pay for the time actually worked than a private employee doing work of like character in 8-hour days, since the private employee is paid only for the time actually worked. If the hours of work of the private employee are 9 hours per day, the Government employee will receive in compensation 30 per cent more pay for the time worked. The difference makes a very considerable handicap in the labor cost of the Government work, and affords some measure of what must be overcome in order to meet the contention that a better output, resulting from diminished hours of labor and increased holidays, is sufficient to offset the handicap.

EXAMINATION AND SETTLEMENT OF ORDNANCE PROPERTY RETURNS.

The auditing of property returns has progressed satisfactorily during the year. Any lessening of the work due to the unit accountability system of accounting has been partially offset by a large increase in the number of schools and rifle clubs accounting for property and to the work of acquainting them with existing methods of accounting. In spite of this increase this work is found in a slightly more advanced state than one year ago.

The amounts which the audit of property returns showed as due the Government, and the collection of which was assured and obtained by that agency during the fiscal year, are tabulated below:

Collected from officers of the Army	$789.62
Collected from enlisted men	25,692.99
Paid by States	568.84
Paid by educational institutions	12,695.88
Paid by rifle clubs	167.76
Paid by transportation companies	2,410.30
Paid by executive departments, etc	324.07
Total collected	42,649.46

The total cost of the clerical force engaged in auditing the returns was $24,500.

ORDNANCE EQUIPMENT FOR MOBILE ARMY.

During the past year this department has been called upon to issue reserve equipment to the various branches of the mobile army. The first demand came as a result of the Executive order raising all organizations of the Regular Army in the United States to maximum strength. The plans of this department contemplated that the arms and equipments set aside for this purpose at the various recruit depots should be issued to recruits when forwarded to their organizations, but as a result of recommendations made by the commanding officers of recruit depots the arms and equipments for the recruits were packed and shipped with the recruits as baggage. So far as this department is concerned this method of issuing reserve equipment was satisfactory, although some expense was involved in repacking the equipment. The second demand came when the Organized Militia of

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the States of Arizona, New Mexico, and Texas was mobilized under the call of the President dated May 9, 1916. The third demand came when the National Guard of all other States and Territories and the District of Columbia was called into the service of the United States under the call of the President dated June 18, 1916.

Information received to date indicates that where the reserve ordnance stores were under the direct control of the department they were promptly supplied and in some cases reached mobilization camps before the organizations. It is reported that there was some delay and confusion in the receipt by the States of the stores set aside in Army field supply depot No. 1. The concentration of such large quantities of stores as was the case in this depot is unwise, as delay in shipment, in case of emergency, is unavoidable. This subject is now being considered by a board of officers appointed by the Secretary of War.

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CAPACITY FOR THE PRODUCTION OF WAR MATÉRIEL.

The European war has brought into sharp prominence the necessity, in a war of magnitude, for employing all the manufacturing resources of the Nation, both public and private, in the production of fighting matériel for the use of the armies in the field; and it has also demonstrated that the failure to make preparation in advance for the use of private industry in the aid of Government factories gives rise to dangerous delay in the commencement of production on the large scale which has now, for the first time, characterized war between civilized countries. In the military legislation of the session of Congress just past the necessity for this advance preparation has been realized and partially provided for. The national-defense act makes in order the appropriation in supply bills of funds for procuring special jigs, dies, fixtures, etc., for fitting private establishments for the manufacture of the particular models of arms and ammunition which are employed in the military service, and grants the War Department relief from the statutory competitive methods in providing for the fitting out of particular establishments with these special appliances, and in placing what might be called educational orders, in pursuance of the policy of insuring the readiness of these establishments to turn out war matériel of satisfactory quality. The supply bills make appropriations, under various headings, for carrying out the policy of the legislation in the national-defense act, both in the procurement of fixtures, etc., and in the placing of orders to insure practice and understanding in the use of these appliances for their intended purpose.

These special provisions are all in the right direction, and will materially aid this department in its plans for utilizing private industry for supplying such emergency needs as may arise. Unfortunately, they do not constitute the only kind of legislation found in the supply bills upon the special utilization of private industry, and are to a certain extent offset in their intentions by restrictions upon the employment of appropriations in general for such patronage of private manufacturers as would of itself operate to prepare them for the Government's use, or to keep in existence plants which have already fitted themselves for the manufacture of war matériel

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in order to meet the orders of European Governments. Some of the appropriations are accompanied by the provision that they shall not be used for placing orders with private manufacturers at prices exceeding by more than 25 per cent the cost of manufacturing the same matériel in the Government arsenals, or the estimated cost of such matériel when it has not been previously manufactured in the arsenals. As the Government has been able, in some cases, to manufacture quite cheaply, this may operate to prevent the placing of orders with private manufacturers. Other appropriations are accompanied by the provision that they shall not be expended in such a manner as to prevent the operation of the arsenals at their most economical capacity. As this capacity is probably that of a two-shift rate, the effect of the legislation is to prevent any of the funds appropriated from being applied to private orders until after the arsenals shall be running at full capacity upon a two-shift basis, and then only to the extent of the excess of the appropriations over the amounts necessary to keep the arsenals going upon this basis. Many of the appropriations are of such size as to afford some excess for private orders, but the number of private establishments which can be utilized and trained in time of peace will be less than it would be if there could be employed for the purpose the funds in excess of the amounts which will be necessary to operate the arsenals upon a one-shift basis only, at which rate they would themselves also have a larger reserve of expansibility for the needs of war time. There are thus opposing tendencies in the legislation which has been enacted with reference to what has sometimes been spoken of as the mobilization of industry.

NITRIC-ACID SUPPLY.

In my last annual report I called attention to the important part played by nitric acid in the manufacture of smokeless powder and high explosives; to the fact that nitrogen in nitric acid is obtained from sodium nitrate which comes from Chile; and that this country is therefore dependent for its powder and high-explosive manufacture upon Chile. Congress has met this situation by appropriating a considerable sum for increasing the reserve supply of sodium nitrate, and also by appropriating $20,000,000 for a nitric-acid plant. The first step in the work of developing a supply of nitric acid, which shall be independent of any foreign source of raw material, is an investigation to determine the best, cheapest, and most available means for the production of nitrates. The War Department has called upon the National Academy of Sciences for a report which will assist it in reaching a conclusion as to the best method among those known for manufacturing nitric acid by a process which does not involve dependence upon a foreign source of supply, taking into consideration all the legislation, with reference to the use of the plant for the manufacture of fertilizer and other substances, contained in the section of the act making the appropriation above mentioned. The National Academy has associated with it the American Chemical Society, and a committee has been appointed from the membership of both bodies for the consideration of the subject. A report is expected in a short time. In addition, this department is making certain investigations relating to individual steps in the process of

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manufacture of nitric acid and to the practice in various European countries, in which it is receiving the active and efficient assistance of the Bureau of Mines of the Department of the Interior.

SEACOAST GUNS AND MORTARS.

Installed armament.—Reports received from armament officers and from the Coast Artillery indicate that the guns and mortars mounted in the seacoast fortifications have been maintained in a satisfactory state of efficiency during the year. No serious defects were developed during the annual target practice of the troops of the regular service and of the National Guard. The difficulties reported in connection with the 12-inch mortar, model of 1912, mounted in the fortifications of the Canal Zone, have been successfully overcome by making the indicated modifications, but reports covering the continued use of these mortars as originally issued indicated that the difficulties were being overcome without modification, at least in part, by the use of special lubricating methods adopted as a result of careful observation of the behavior of this matériel under the peculiar climatic conditions of the Canal Zone.

Gun construction.—The designs of the new types of cannon included in the approved project of the Board of Review are well under way and their manufacture is about to be undertaken. In addition to larger and more powerful guns and mortars for fixed seacoast emplacements, there are included types for the attack of aircraft and for mounting upon specially designed railroad cars.

FACILITIES FOR THE MANUFACTURE OF SMOKELESS POWDER.

For the past three or four years the department has manufactured its entire supply of both caliber .30 powder and cannon powder; but of the amounts called for by the greatly increased appropriations made at the last session of Congress, Picatinny Arsenal will be able to manufacture only 40 per cent of that to be procured during the fiscal year 1917. Congress has appropriated funds for rounding out the capacity of the Picatinny Arsenal for the manufacture of smokeless powder to 11,000 pounds per day, on a three-shift basis, of which 6,000 pounds may be reworked powder.

There has also been a recent appropriation by Congress of $500,000 for a new Army powder factory. While the act appropriating this money is so worded that it may be expended for the enlargement of any existing plants owned by the Government, a new factory, on a new site, will probably be decided upon. In another part of my report I refer to the congressional appropriation for a Government nitric acid plant, and there are many considerations pointing to the desirability of locating the new powder plant at the same place. The requirement that the plant be reasonably inaccessible to a possible enemy calls for a site between the Allegheny Mountains and the Sierra Nevadas, well withdrawn from the northern and southern borders.

MACHINE GUNS.

The greatly increased prominence which the European war has given to machine guns renders appropriate an examination of the subject, especially with reference to our own service. This class of

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weapon had been developed to a serviceable stage at the time of the Spanish-American War; but neither in that war, nor the Boer war, nor the Philippine insurrection, nor the Pekin relief expedition, nor the Russo-Japanese War, nor the Balkan War had it attracted anything like the attention which has resulted from its use in the European war. The fire effect attainable by the use of machine guns had received ample proving ground demonstration, but the use in the European war of large numbers of troops, in comparatively dense formations, together with the diminished weight and correspondingly increased portability of machine guns, have shown for it an effectiveness which was not realized in the earlier contests when more dispersed orders of battle were the rule. The Germans had apparently realized better than anyone else the value of machine guns in the kind of wars which they expected to be engaged in, and therefore supplied their troops in greater numbers than did other powers. We, in common with most other civilized nations, had an appreciation of the need for machine guns which was expressed in our established allowance of about 4 per regiment, the supply of which for the Regular service was complete, and for the National Guard and for wartime reserve was in process of accumulation at the very moderate rate corresponding to annual appropriations of about $150,000.

An appropriation of this size was made in the Army act of 1912, but before the consideration of the bill for the next year expressions of dissatisfaction with the rifle with which the service was then, and still is, principally armed, the Benét-Mercié, otherwise known as the light Hotchkiss, had reached the ears of Congress. This dissatisfaction was, I believe, largely due to lack of proper instruction in the use of this class of weapon, and the belief on the part of numbers of officers in the service that there was some other machine gun of such simpler construction that no great amount of special instruction would be necessary for its use; which was a radical error. The Army appropriation act of 1913, therefore, instead of making an appropriation for machine guns authorized the Secretary of War to contract for their construction to the extent of $150,000, "if in his opinion it be for the best interests of the service." This legislation reflected doubt in the mind of Congress as to the suitability of the service machine rifle, and threw upon the Secretary of War a more impressive burden than usual of responsibility for the type of machine rifle for which contract should be made. Before urging upon the Secretary, therefore, the exercise of the authority which had, with some warning, been conferred upon him, the Ordnance Department joined in the dispositions for a competitive test of automatic machine rifles, which was held in the autumn of 1913 and continued in the spring of 1914; the guns now most prominent among those which were tested being the Benét-Mercié, the Vickers, and the Lewis. At the searching test held in the autumn of 1913 all the competing guns were eliminated except the Benét-Mercié and the Vickers, and of these a field test was made in the spring of 1914 which resulted in the selection of the Vickers. During the course of the tests the Army bill of 1914 was passed, but as no conclusion had yet been reached the bill made no appropriation for this class of weapon. At the time of the passage of the bill of the following year, 1915, the Vickers gun had been adopted as the approved type,

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and that bill therefore made an appropriation of $150,000 for machine rifles, and in addition reappropriated an unexpended balance of $44,421, which had been left over from preceding appropriations, at the time when the question of substituting a new rifle for the Benét-Mercié was actively taken up. The funds thus made definitely available, without conditions, were made the basis of a contract for Vickers guns. No delivery of these guns has yet been had, owing to the interference of the European war, both with deliveries from abroad and with preparation for the manufacture of this British gun in this country.

It is thus seen that the suspension of procurement of machine rifles commenced in 1913 owing to doubt as to the service type in the mind of Congress; that is, of the Military Committee of the House of Representatives: that tests to resolve this doubt were undertaken; that the tests showed the Benét-Mercié and the Vickers guns to be the best in existence, and the Vickers to be the better of these two; that up to the present time it has not been possible to procure a supply of Vickers guns. It can be stated, however, that an abundant capacity for the manufacture of Vickers guns will be available in this country within a few months.

Under these conditions, if such a necessity had been considered to exist as to call for the earlier procurement of machine guns than was possible of the Vickers type, the manufacture of the Benét-Mercié gun would have had to be continued at the arsenal and the private factory which were then turning it out. There would have been no justification for getting any other gun. It may be that the Ordnance Department should have urged upon the Secretary of War, and upon Congress, with insistence, the expenditure of large sums for the further procurement of Benét-Mercié guns, notwithstanding the fact that a better gun had become known. It did not do so; and if a mistake was made it will be shown by the rise of an emergency really calling for the use of a larger number of machine guns than we may have when it comes. So far this has not taken place.

Since the conclusion of the tests above described, one of the prominent guns tested, the Lewis gun, has received an additional trial, in April last. This test, like the preceding one, was made by a board consisting of officers of different branches of the service. including one Ordnance officer. As a result of the test the board reported that the Lewis gun was not equal to either the Vickers or the Benét-Mercié gun employed in the preceding test. If, therefore, it had, at any time up to the present, been decided to undertake the manufacture of additional guns, without waiting for the Vickers, they would have had to be Benét-Mercié and not Lewis guns, unless the most careful conclusions it had been practicable to obtain had been disregarded; since it must be borne in mind that the considerable use of the Lewis gun by the British Army has given no comparative information as between it and the Benét-Mercié, which is used by the French, Russian, and Japanese armies.

When the militia was called into the Federal service last June, 44 regiments had been equipped with 4 machine guns each, of the Benét-Mercié type, which is that still used in the regular service, although the Vickers has been approved for future supply. The number of guns required for special purposes along the Mexican

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border was such that the very small number available did not permit equipping the additional militia regiments with this type, and as there were available but few Maxim machine guns, which had been superseded by the Benét-Mercie when it became the adopted type, it became essential to procure machine guns for the remaining militia regiments as promptly as practicable. As a result, 353 guns of the Lewis type, upon the recommendation of this department, were procured under terms of practically immediate delivery. The majority were shipped to the commanding officer of the San Antonio Arsenal for distribution, as the militia regiments were being sent forward to the Southern Department as rapidly as practicable and hence no certainty existed of being able to make deliveries to organizations before their departure for that department. As the design and manufacture of pack outfits for these guns would have required a considerable period, light automobile trucks, five to an organization, were procured in place of packs.

So little time has elapsed since the delivery of these guns that no comment in regard to their service performance is now practicable.

Advantage has been taken of the mobilization of troops in the Southern Department to do everything possible to further instruction of the machine gun organizations in the operation and care of their arm, which has heretofore been in a very backward condition, due largely to the fact that such organizations were not until recently recognized by law, and were of a temporary character, made up of details from other organizations. In addition, there was no honor or reward attached to proficiency in the use of the gun, but the members received medals and additional pay for proficiency with the small-arms rifle, which is not used at all in a machine gun unit. The necessity for thorough training in the use of this arm has also not heretofore been appreciated in the Army, nor is it now as well understood as it should be. As a result of experience gained in the war England and France now have machine gun schools, some of them with many thousand pupils, and they do not permit the assignment of either officers or enlisted men to this branch of the service until after the most thorough training. Mechanics specially trained for the work have been sent to the Southern Department from the Springfield Armory to assist in the instruction of troops in the mechanical manipulation of the Benét Mercié and the Maxim guns, and as to the Lewis guns the policy was adopted of not issuing them to organizations until the personnel had been given training in their use. Schools were immediately started at San Antonio Arsenal, at Harlingen, at El Paso, and at such other places as were practicable, and employees of the Savage Arms Co., from which the Lewis guns had been purchased, were employed by the Ordnance Department in connection with the work. The results obtained, even in the limited time which has elapsed, are an encouragement to further effort, and the Lewis guns are entering the service with the advantage which their predecessors ought to have had but did not get.

The Army appropriation act approved August 29, 1916, carries appropriations amounting to $12,000,000 for the procurement of machine guns, which is sufficient to considerably relieve the existing stringency in the supply of this class of weapon when the guns shall have been procured. Heretofore appropriations for this purpose

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have averaged about $150,000 per annum, sufficient for the procurement of less than 100 guns. As yet the War Department has not reached a decision as to the manner of expenditure of these funds and the procurement of guns must await such action. A board has been appointed to consider the subject.

FIELD-ARTILLERY MATÉRIEL.

The tests of the 3-inch gun and split-trail carriage, with approximately 45 degrees traverse of the gun on the carriage, 50 degrees elevation, variable recoil, etc., have been carried to a point where manufacture in quantity has been undertaken. The limber and caisson of this gun have now been tested over all classes of roads, including cobblestone, at speeds up to 12 miles per hour, for a distance of 3,000 miles, with practically no damage. Orders have been given to subject them to such violent treatment as to cause breakages, in order that the weakest points may be determined. The caisson is provided with springs between the chest and the axle to relieve the road shocks.

The 3.8-inch howitzer and carriage to which I referred in my last annual report, and which is generally of the same type as the 3-inch gun and carriage mentioned above, have been modified for increased ranges and are now undergoing test.

Drawings have been completed under a contract for a 4.7-inch gun and split-trail carriage, and a 6-inch howitzer and split-trail carriage, both with wide traverse, angles of elevation up to 50 degrees, variable recoil, driven spades, etc., and the pilots are under manufacture. It is expected that as soon as these pilots have been subjected to test, and have been found satisfactory, a considerable quantity of this matériel will be procured.

A 7.6-inch howitzer and carriage, with transport wagons, have been completed and are undergoing test. This piece fires a 240-pound projectile from a wheeled carriage. The type is 100 per cent more powerful than the 6-inch howitzer, the heaviest field artillery contemplated by approved projects heretofore in force, and was designed for the purpose of anticipating probable demand for a larger caliber and in accordance with the general scheme for the ratio of increase in calibers heretofore followed. Within the last few months, however, the War Department has decided to omit this caliber from the field-artillery scheme and make the 9.5-inch howitzer, firing a 480-pound projectile, the next in size after the 6-inch. As the 7.6-inch howitzer is of a power equal to the usual foreign equipment of from 8 to 8.5 inches caliber, it will in case of need be very useful, and the pilot is being tested with a view to removing any difficulties that may be encountered, and being prepared to manufacture this type in quantity at any time pending the development of other heavy types.

SUPPLY OF MOBILE ARTILLERY.

Progress in manufacture under appropriations made for the last fiscal year has been at the usual rate. The appropriations available were about the same as for the preceding year, and were sufficient for an appreciable progress. The appropriations and authorizations

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made in the fortifications and Army acts, approved, respectively, July 6 and August 29, 1916, totaled very much more than for any previous year and there will be correspondingly more satisfactory progress. It has not yet been developed whether full advantage of the appropriations made can be taken, due to restrictive legislation. The Army act requires manufacture at arsenals equal to their capacity for approximately two years, and the fortifications act places a limitation upon the price at which contracts may be let, which may cause difficulty, although it should not do so.

CHANGE IN THE APPROVED FIELD ARTILLERY PROJECT.

The project for the procurement of field artillery under which the War Department has been operating since 1911 was that prescribed in the proceedings of the so-called "Greble Board". With the information available at the time this board reported it was considered that the quantities of field artillery and ammunition therefor which were recommended were perhaps excessive, judged from the standpoint of the probable appropriation of funds. Although that project called for an increased number of guns per thousand of infantry and cavalry, and an increased allowance of ammunition per gun, as compared with any previous estimate, it was, even in 1911, when compared with the supplies accumulated abroad, very conservative. Something over a year ago another War Department board was convened for the purpose of recommending quantities and types of field artillery and ammunition to be procured in time of peace. Report of this board was submitted to the War College Division of the General Staff and to the Chief of Ordnance, and after very thorough consideration, was, in a modified form, approved by the Secretary of War. This report is generally referred to as that of the "Treat Board," from the name of the senior officer of the board, Col. Charles G. Treat, Field Artillery. The approved project involves an increase in the number of guns per thousand of Infantry and Cavalry of about 60 per cent. The increase in the allowance of ammunition per gun is approximately 40 per cent, and the increase in the force for which equipment is to be procured is about 100 per cent, all as compared with the Greble Board report. The quantities of field artillery, and ammunition therefor, used in the present European war are so enormous as to have been undreamed of before the war. It is consequently thought that if there be any criticism of the approved project referred to it will be against its conservatism.

HEAVY MOBILE AND MOVABLE ARTILLERY.

A railway mount for 4.7-inch howitzer and machine guns has been designed and manufactured and is almost ready to be tested. It is anticipated that from the firings with this equipment a great deal of information with regard to heavier pieces will be secured. Such heavier pieces, with their railway equipment, are being designed and two should shortly be ready for manufacture, funds for the purpose having been appropriated at the last session of the Congress. In addition, negotiations are in progress to ascertain whether such equipment may be obtained from commercial firms. A repre-

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sentative of this department is now in Europe with a view to determining what desirable designs, if any, for this and other classes of equipment may be procurable. A 12-inch howitzer, to be fired from a wheeled mount and to be handled by motor traction, has been designed, and a pilot is being manufactured. This also is among the class of heavy artillery of which a pilot may possibly be procured by purchase.

The great value of movable and mobile artillery of power sufficient for combat with ships of war lies in the prevention of landing troops or using as a base those portions of our coast which are not protected by seacoast fortifications, or rendering such use difficult. As the number of places which can advantageously be fortified is limited and our coast line is extensive, this equipment assumes perhaps a greater importance with us than for any other country. It should not, however, be overlooked that it necessarily has certain disadvantages as compared with fixed fortifications, due to its method of mounting and employment and its lack of protection. Substitution of this class of armament for fixed defenses is, however, not intended. As the attack of the Dardanelles forts, which are of comparatively small defensive power and not modern in either construction or equipment, by the most powerful ships in the English and French fleets during 1915 has served but to confirm previous experience to the effect that modern land defenses of reasonable power are practically impregnable against the attack of ships, it follows that substitution of heavy movable artillery for fixed fortifications would be merely giving up a considerable part of the advantages which the latter possess; in other words, if heavy movable artillery of the type and calibers now used in a given fortification were available for that neighborhood it would be concentrated in places where the fixed emplacements now are and would be without the advantages of protection, fixed fire-control systems, etc., which the permanent emplacements possess.

DESIGNING WORK.

Due to the developments of the European war and to the increased activity in the line of preparedness for war in this country that has been evident during the past eighteen months, particularly the desire for the attainment of ranges which have heretofore been considered impracticable, it has become necessary to make new designs for all types of field and seacoast gun carriages intended to be employed. This requirement refers not only to those existing types which it was previously intended to duplicate in future manufacture, many of which are of comparatively recent date, but also to the production of designs for new types and new calibers. There has also developed the need of heavy movable artillery on railway mounts, anti-aircraft artillery both field and seacoast, and other classes. As this country has practically no ordnance-designing experts except those in the Army and Navy and a very small number at one private manufacturing plant, and as the number of officers in this department is insufficient to carry on its routine work, this increase in demand for designs can not be met as promptly as the department would wish. The designing work must be done mainly under the supervision of the head of the department and therefore in this city, and restrictive

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legislation prevented a prompt effort to expand the drafting force, as the law did not permit increasing the number, or securing space in which any increased number could work in Washington. Both of these difficulties have been met by legislation enacted at the last session of the Congress, and the mechanical facilities for designing work have been greatly increased. The procurement and training of additional men are being pushed as rapidly as practicable, but it is at best a slow process.

Such assistance in this line of work as could be procured from outside the department has been obtained, but the available help is not large. In this connection it should be remembered that all of the munition work that has been done in this country for the European nations at war has been in accordance with designs furnished by those nations.

SEACOAST CARRIAGES.

The issue of seacoast guns and carriages to the Panama fortifications has been completed so far as provided by appropriations available previous to the last session of Congress, except that the 16-inch disappearing carriage is undergoing test at the Sandy Hook Proving Ground. This test has been nearly completed for the carriage as built, without developing any difficulty of consequence. The carriage as originally designed permitted a maximum elevation of 15 degrees. The necessary parts for increasing this elevation to 20 degrees are under manufacture and will be ready for assembly to the carriage in the near future. It is contemplated that the changes will be made at Sandy Hook and that a few rounds for test of the new mechanism will then be fired.

The design and production of the 16-inch disappearing carriage, which is the first of its kind ever made, and which successfully controls the forces resulting from a muzzle energy of 188,894,720 foot-pounds, constituted a very considerable engineering success. The production of this carriage was not undertaken at the time the gun was manufactured and tested, because for a long time there was question as to whether the gun would be emplaced in the seacoast fortifications, and if so, at what point. It would have been difficult to defend the design and manufacture of so expensive a carriage when there was no project for its utilization, and when it might consequently be devoid of the improvements which would surely result from experience, and become one of the older types before it had been used.

Practically all of the manufacture of the armament for the San Pedro and insular fortifications provided by appropriations made prior to the last session of the Congress has been completed.

Appropriations made in the fortifications act approved July 6, 1916, for the procurement of armament were considerably increased over those of previous years. The capacity of the arsenals manufacturing this class of equipment is comparatively small, and it will consequently be necessary to procure a very considerable part by contract. It is hoped that the limitation placed by the law which forbids, except in an emergency, the letting of contracts at prices greater than 25 per cent more than the arsenal cost, or in the absence of an arsenal cost the arsenal estimate, for the same article, will not delay procurement.

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COST OF MATERIAL AND LABOR.

The cost of material and labor has increased so extensively, even in the last year, and a continuation of the increase seems so likely, that it is anticipated the procurement of field and seacoast artillery matériel and many other classes of ordnance supplies in the quantities covered by the estimates submitted at the last session of the Congress will not be possible unless additional funds be appropriated at the coming session to complete the work. While the increase varies for different classes, and not in accordance with any fixed rule, it is conservatively estimated that the average increase in cost of ordnance matériel during the past 12 months is from 25 to 40 per cent.

The legislation contained in the naval appropriation act which adds 15 working days' leave of absence with pay for all employees of the Ordnance Department, the provisions of the Army appropriation act which forbid time studies and the payment of premiums, and the tax on munitions imposed by the revenue act will further increase the cost of production over that anticipated at the time the estimates were submitted.

MAINTENANCE OF ARMAMENT OF FORTIFICATIONS.

This work has proceeded satisfactorily during the year, and service guns, mortars, and carriages have been maintained in a good state of efficiency. There has been encountered a rather serious difficulty with the 14-inch disappearing carriage in that several elevating screws have been broken. The pilot carriage at the Sandy Hook Proving Ground was fired 189 rounds before this defect appeared, but several carriages emplaced in the fortifications of the Canal Zone had the screws broken on the first proof firing. This matter is under investigation and it is known that the difficulty can be cured, although the best method of accomplishment of this result requires some experimentation and consequent time. A design for increasing the maximum elevation permitted by these carriages from 15 to 20 degrees is under way, which will correct the difficulty referred to, but a considerable time for manufacture and assembly of these new parts will be required. In the meantime steps are being taken for modification which can be made promptly and will make the carriages serviceable for use at any elevation now permitted until the gearing for the 20-degree elevation can be installed.

IMPROVEMENTS IN INSTALLED SEACOAST GUNS AND CARRIAGES.

Modification of the seacoast matériel of the older types has proceeded as far as funds have permitted. The modification of the 15-pounder balanced pillar carriages, model of 1898, is nearing completion. The firing magnetos referred to in my last annual report have been procured and are being attached to all carriages for guns of 6-inch caliber and over, and are being supplied to all mortar batteries. The tests of the 12-inch disappearing carriage in which the maximum elevation permitted has been increased to 15 degrees have been satisfactorily completed, and the necessary parts for making this alteration to carriages in service are in process of manufacture.

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MOTOR EQUIPMENT AS APPLIED TO ORDNANCE MATÉRIEL.

The Army appropriation act approved March 4, 1915, contains an appropriation of $50,000 for the procurement of armored motor cars, including shielded motor-cycle outfits. This class of equipment is a development of the European war and has had, in effect, no practical trial in this country; nor is it easy to determine what are the best types in use abroad and what constitutes the best use of such types. The department purchased four automobile chassis trucks, equipped them with armor and made such modifications as were necessary for the mounting of machine guns, and shipped them to the troops on the Mexican border for experimental use. Two of these cars were each provided with two revolving turrets, and were capable of carrying considerable ammunition with a rather large crew, and were very completely equipped, with the result that they weighed in the neighborhood of 11,500 pounds, which is likely to prove too heavy for this class of matériel. It was nevertheless deemed expedient to determine what could be done with so much weight, as an equal or greater load on the wheels will be necessary for the mounting of guns of caliber greater than the machine guns, with which class of equipment experiments are to be made.

Two of the armored automobiles each had one revolving turret mounting one machine gun, and weighed about 8,500 pounds each. This latter type will, it is believed from reports thus far received, prove to be more satisfactory for general use than the heavier type. Experiments are now under way with a still lighter type which should weigh not more than 6,500 pounds, which, of course, will require that the crew shall be reduced, the size of the armored space reduced, and the amount of ammunition carried lessened. This type, however, gives great mobility and will, it is believed, in spite of the cramped quarters, prove to serve a very useful purpose.

The armored motor cars which were sent to the Southern Department had not been thoroughly tested by this department and would not under normal conditions have been issued to the service without exhaustive trial to remove any practical difficulties that could be located. The mobilization of the militia and apparent probability of hostilities resulted, however, in the cars being forwarded as they were at the time the emergency arose, with the expectation that they would be at least of some use.

The design and procurement of a number of motor-cycle machine-gun outfits was also undertaken, resulting in a unit consisting of a machine gun mounted on the side car of a motor cycle, two ammunition and supply caisson side cars, and one motor cycle without side car for the commanding officer of the detachment, for each two guns and pertaining equipment. There has since been added to the unit an additional caisson for each gun. A number of these units, including two different types of motor cycles, were manufactured and furnished to the troops on the border, and they are now undergoing test. The machine-gun mounts were permanently attached to the side cars and arrangements were made for the removal of the guns from the mounts and their use independently thereof by tripods, which were furnished. In addition, spare guns were supplied. As in the case of the armored motor cars, this equipment was entirely experimental and was sent to

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the border before any opportunity had been had for test. Some difficulties have therefore been encountered which are being corrected, and it is expected that the use now being had will develop other troubles and will eventually result in the procurement of a satisfactory type. A change in the design is now being made so that the gun will be mounted on the side car chassis by means of a tripod which is readily detachable, thus enabling use either on the side car or removed therefrom.

The appropriation for this class of equipment made by the Army appropriation act of August 28, 1916, is $500,000, so that it is expected to make considerable progress during the year toward procurement of a supply of armored automobiles and shielded motor-cycle outfits for the service.

There have been conducted at Fort Sill and at the Rock Island Arsenal tests of tractors and trucks for use in connection with heavy field artillery, in replacement of horses. The promise of success with the caterpillar type of 45-horsepower tractor, hauling approximately 16,000 pounds, made up of a 4.7-inch gun or 6-inch howitzer, with a loaded ammunition limber and caisson, has been such that one battery of heavy artillery has already been equipped for experimental trial of this class of traction. The battery is also being furnished trucks for transporting one-half of the ammunition and for replacement of the battery and store wagons. In addition, the men who have heretofore been mounted on horses are to be transported on motor vehicles or motor cycles. The experiment was not extended to a greater number of organizations because of lack of funds at the time. There is now being procured motor equipment of the class referred to above for the entire Ninth Regiment of Field Artillery, which is stationed in the Hawaiian Islands, where motor traction has even greater advantages than is ordinarily the case. It is considered that the development of motor traction as applied to ordnance equipment is one of the most important subjects before the department at this time, and every effort is being made to test and procure satisfactory matériel.

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Very respectfully,

WILLIAM CROZIER,
Brigadier General, Chief of Ordnance.

The SECRETARY OF WAR.

REPORT OF THE CHIEF SIGNAL OFFICER.

WAR DEPARTMENT,
OFFICE OF THE CHIEF SIGNAL OFFICER,
Washington, October 3, 1916.

SIR: I have the honor to submit my annual report for the fiscal year ended June 30, 1916. This report covers the operations of the Signal Corps in Alaska, the Canal Zone, Hawaii, the Philippine Islands, the United States, and Mexico. Some account is also taken of events occurring between June 30 of this year and the present date.

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Before discussing in detail the various operations of the corps, I desire to make brief mention of conditions affecting the Signal Corps and the scope of its work.

To meet the exacting duties imposed and in a field of operations widely spread, and to keep abreast with the march of progress in devising and perfecting methods for collecting and transmitting military information, it is of the first importance that a personnel sufficient in number and skilled in the technical duties of this corps be available. The corps is fortunate in still having a permanent personnel, commissioned and enlisted, who though small in numbers, are of an exceptionally high grade of intelligence, and it is believed that these men form as efficient and faithful a body of soldiers as can be found anywhere, and that it is due to their energy and industry that the work of the corps has been well accomplished. Happily, the efforts of many of these men will be rewarded by promotion as a result of increases in the different grades of the corps authorized by the national-defense act and the current Army appropriation bill. But it is becoming more and more obvious to the Chief Signal Officer that with the passing of the old and experienced officers, trained as they have been by long service in the duties of the corps and familiar with its work and its traditions, and with the shrinkage in the noncommissioned ranks trained under them, the technical and professional side of the service is growing less and less efficient. The Signal Corps of the Army is of necessity a corps of specialists; and if it maintains its high soldierly character, and improves in this respect by reason of the detail of officers from the line, the technical side of this service necessarily suffers and is bound to suffer more in the future from the constant change of officers detailed to serve with it for a time. Soldierly qualities and training are gratifying, but they are not enough; signalmen are and of necessity must be skilled in their technical work; both officers and soldiers must be trained in their trade as all specialists must be trained, and it is becoming increasingly evident that the systems of detailing officers from the line for periods of service, frequently short, is as vicious as it is archaic and should be changed. Officers so detailed are, as a rule, neither trained in themselves, nor can they train others, and I believe that neither the Signal Corps nor the line of the Army, as a whole, desires this exchange or are benefited thereby. I am, therefore, led to recommend, as urgently as may be possible, the return to the system of permanent appointments of field officers and captains in the Signal Corps. Selection may very properly be made to these permanent grades by examination of officers of the line who have served in the corps as lieutenants, who have proved their value to the corps, and who have made their own decision as to the branch of the service in which to make their careers.

During times of peace the duties of the Signal Corps are extensive and important, but events abroad and in our own Army on the border emphasize the constantly increasing importance of supplying and operating the highly technical apparatus required for maintaining adequate means for collecting and transmitting military information necessary to an army. In order that the most modern methods of performing this duty may be utilized to the fullest extent, every effort must be made to keep informed of advances in science

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and use made of the discoveries and developments of new means for applying electricity, mechanics, and aircraft to warfare.

The Signal Corps has long been handicapped in the proper performance of its duties by the lack of an adequate personnel. This situation has, however, been partially relieved by increases in men and officers of the corps under the national-defense act of June 3, 1916. Under this act, the Signal Corps will ultimately have, when all five increments have been authorized, a commissioned strength of 1 chief signal officer, with the rank of brigadier general, 3 colonels, 8 lieutenant colonels, 10 majors, 30 captains, and 75 first lieutenants, while the aviation section of the corps will have a commissioned strength of 1 colonel, 1 lieutenant colonel, 8 majors, 24 captains, and 114 first lieutenants. The enlisted strength of the corps will be fixed by the President. The number of master signal electricians will be 2 per cent of the total authorized enlisted strength of the entire corps; the number of sergeants, first class, will be 7 per cent; the number of sergeants, 10 per cent, and the number of corporals, 20 per cent. The grade of horseshoer has been added to the Signal Corps, and under the Army appropriation bill, approved August 29, 1916, the number of privates, first class, will be 45 per cent and the number of privates 9 per cent.

The first increment added 1 colonel, 1 lieutenant colonel, 1 major, 3 captains, and 11 first lieutenants to the Signal Corps proper, and 1 major and 16 other aviation officers to the aviation section, so that on July 1 of this year the authorized commissioned strength of the Signal Corps was as follows:

SIGNAL CORPS PROPER.

Brigadier general and chief signal officer	1
Colonels	2
Lieutenant colonels	3
Majors	7
Captains	21
First lieutenants	29

AVIATION SECTION.

Major	1
Captains	11
First lieutenants	65

The President has fixed the enlisted strength of the Signal Corps to become effective July 1, 1920, when all five increments will be available, at 4,000 men, the number in each grade being as follows:

Master signal electricians	80
Sergeants, first-class	280
Sergeants	400
Corporals	800
Cooks	88
Horseshoers	36
Privates, first-class	1,853
Privates	463

The increases authorized for the first increment, which became effective July 1, 1916, were 6 master signal electricians; 27 sergeants, first class; 46 sergeants; 113 corporals; 16 cooks; 16 horseshoers; 225 privates, first class; and 57 privates, so that the Signal Corps, includ-

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ing the aviation section, now has with the increases authorized under the first increment added to its previously authorized strength, an authorized enlisted strength of—

Master signal electricians	54
Sergeants, first class	171
Sergeants	214
Corporals	347
Cooks	48
Horseshoers	16
Privates, first class	859
Privates	269

ORGANIZATION OF THE SIGNAL CORPS.

It is proposed to organize this force into two field battalions (less outpost companies); 2 telegraph battalions; 1 depot battalion; 1 wire company; 2 radio companies; 4 depot companies; 3 platoons of a telegraph company; 2 aero squadrons; 2 aero companies; and a school detachment for duty at the Signal Corps Aviation School at San Diego, Cal. There were organized at the end of this fiscal year 4 field companies, 1 radio company, 2 telegraph companies (less 2 platoons); 1 aero squadron; 1 aero company, and 6 depot companies. These organizations will be expanded into the units proposed.

The field and telegraph battalions will be stationed in the United States and will be organized from signal troops now serving in the Southern Department. A wire company and a platoon of a telegraph company will be stationed in the Philippine Department, while a radio company and a platoon of a telegraph company will be stationed in the Hawaiian Department and in the Canal Zone.

The depot battalion will be assigned to duty in connection with the operation and maintenance of the Washington-Alaska Military Cable & Telegraph System, and will be organized from the two depot companies now on that duty. The four depot companies will be stationed in the United States, one company in each territorial department. The personnel of these companies will be used for supplying the men needed for detached service at posts and depots, such as radio and telegraph operators, telephone men, clerks, etc., for furnishing radio operators for service on transports, and for duty in connection with the instruction and training of recruits at Signal Corps schools for enlisted men.

Two of the aero squadrons will be organized and stationed in the Southern Department; one aero company will be assigned to the Philippine Islands and one to the Canal Zone.

Field battalions have been authorized, with a few minor changes as to the number of men allowed in the various grades, practically the same as recommended in my last report. The battalion is organized for duty with a division and is intended to furnish the communication that knits the division into a whole. It is commanded by a major, with a first lieutenant as battalion adjutant and supply officer; a sergeant major and battalion supply sergeant, both having the rank of sergeant, first class; a color sergeant and clerk, each of the grade of sergeant; 9 privates for duty as drivers and orderlies; 1 wire company; 1 radio company; and 1 outpost company: each company having a strength of 1 captain, 2 first lieutenants, and 75

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enlisted men. The enlisted personnel, by grades, of each company is as follows:

	Wire company.	Radio company.	Outpost company.
Master signal electricians	1	1	1
Sergeants, first class	5	6	3
Sergeants	7	9	5
Corporals	12	15	14
Cooks	2	2	2
Horseshoers	1	1	1
Privates, first class	39	35	37
Privates	8	6	12

The wire company is organized into two platoons of two wire sections each and is equipped for establishing buzzer communications for the four combat lines to the brigades. Its transportation and equipment consists of 6 wire carts and 1 instrument wagon, and it has 65 riding horses, 12 draft horses, and 4 draft mules.

The radio company is organized into four radio pack sections and one wagon radio section. The pack sections are intended to provide constant communication with divisional cavalry or supply trains and for any other necessary communication where the laying of wire is impracticable. The wagon set is to be used for communication with other divisions, field Army headquarters, and the base. The company has assigned to it 5 pack sets, 1 wagon set, 1 instrument wagon, 70 riding horses, 4 draft horses, 4 draft mules, and 12 pack mules.

The outpost company has not yet been organized, but the Tables of Organization contemplate that it shall be organized into four platoons, one to each brigade for the necessary interior communication within the brigade. It will be supplied with 1 instrument wagon, 18 riding horses, 4 draft mules, and 4 pack mules.

The telegraph battalion is intended for service with a field army corps, and is organized to maintain communication between the interior and the field army corps or to connect the headquarters of the field Army with its component parts. It is commanded by a major, with a first lieutenant as battalion adjutant, and a first lieutenant as supply officer; a sergeant, first class, as battalion sergeant major; a sergeant as battalion supply sergeant; three privates as drivers and orderlies, and two telegraph companies of 100 enlisted men each.

The organization of a telegraph company has been materially changed and its personnel greatly reduced since my last report. The number of sections has been reduced from six to four, so that its present organization consists of four sections, two telegraph and two telephone. The personnel of a telegraph company is 1 captain; 2 first lieutenants; 2 master signal electricians; 8 sergeants, first class; 11 sergeants; 17 corporals; 2 cooks; 1 horseshoer; 48 privates, first class; and 12 privates. Its transportation and equipment consists of 4 lance trucks, 2 telegraph wagons, 4 telephone wagons, 2 repair wagons, and 3 field wagons. It has 39 riding horses and 60 draft mules.

An aero squadron is required for service with each division, or when divisions are operating as parts of a field army corps the squadrons may be detached from divisions and grouped under the immediate

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control of the field Army commander. The recommendation in my last report that aero squadrons of 12 machines be the basis of our organization has been approved, and existing Tables of Organization provide for three companies of four machines each for a squadron. A major will be in command of the squadron, with a first lieutenant as squadron adjutant and quartermaster; 2 master signal electricians; 2 sergeants, first class; 6 corporals; and 2 privates, first class, for duty with the headquarters and supply detachments. Each aero company has an authorized strength of 1 captain; 5 first lieutenants; 1 master signal electrician; 2 sergeants, first class; 5 sergeants; 9 corporals; 2 cooks; 14 privates, first class; and 6 privates.

The restrictions as to the age, rank, and marital condition of officers detailed in the aviation section, imposed by the act creating the aviation section, approved July 18, 1914, were removed under section 13 of the national defense act of June 3, 1916, as recommended in my last annual report, and, contrary to earlier expectations, it is now believed that with these restrictions removed little trouble will be experienced in obtaining sufficient officers from the line to fill the vacancies existing in the aviation section. Under the law as now constituted, it will also be possible to obtain sufficient officers of the proper age and experience to command the squadrons to be organized and for the necessary administrative work incident to the development of this service.

The act of June 3, 1916, also wisely made provision for the appointment of civilian aviators in case sufficient officers should not be available to fill existing vacancies. These aviators will have the base pay of $150 per month and the allowance of a master signal electrician. So far as can be seen at this time, it will not be necessary to appoint any aviators from civil life, unless additional increments are authorized for the aviation service, as sufficient officers of the line have already applied for aviation duty to fill all vacancies. At the present time there are 39 officers detailed in and 46 students attached to the aviation section, while the first increment authorizes a strength of 77 officers.

OFFICERS' RESERVE CORPS AND ENLISTED RESERVE CORPS.

Among the most important sections of the national defense act are those authorizing the organization of the Officers' Reserve Corps and the Enlisted Reserve Corps. It is considered most desirable that the Officers' Reserve Corps and the Enlisted Reserve Corps be developed to the fullest possible extent. By doing so, it is believed a body of experienced technical men can be organized and trained in times of peace and be available for service in times of need. Every encouragement will be afforded to applicants for appointment in the Signal Officers' Reserve Corps, and real efforts will be made to enlist as large a number of men as possible for the Enlisted Reserve Corps.

During the present period when aviation is used so extensively in modern warfare, the desirability of having a reserve of experienced aeronautical men for service with the aviation section of the Army in case of war needs no argument. As there are comparatively few men in this country skilled in this art, it is all the more important that a large reserve be trained and that every facility and encouragement be afforded men desiring to perfect themselves in this work.

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This office has therefore obtained authority for an Officers' Reserve Corps and an Enlisted Reserve Corps for the aviation section in numbers and grades as follows:

OFFICERS' RESERVE CORPS.

Majors	16
Captains	48
First lieutenants	232

ENLISTED RESERVE CORPS.

Master signal electricians	40
Sergeants, first class	140
Sergeants	200
Corporals	400
Privates, first class	305
Privates	915

In view of the time required for becoming a skilled flier and the comparatively few opportunities and facilities afforded throughout the country for obtaining this training, this office purposes to call members of these reserve corps, with their consent, into active service a considerable period during the coming year. It is also purposed to utilize the civilian aviation schools of the country in training desirable applicants for service in the Officers' Reserve Corps, and that these schools will be compensated for each reservist undergoing instruction.

If this plan is successful, it is believed the reserve of officers and men for aviation duty will be put on a practicable basis which, in due course, could supply the country with an efficient reserve of flying men in case of need.

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RADIOTELEGRAPHY.

Continual improvements are being made in the radio equipment furnished by the Signal Corps, in order that the equipment supplied may keep pace with the rapid advancement of the art.

There are now being constructed under the direct supervision of the Engineering Division of this office eight wagon sets, which will embody many improvements over those previously constructed.

Much work is also being done toward the development of equipment for the construction of a number of additional 2-kilowatt tractor sets, which will be along the lines of those now operating so successfully along the Mexican border.

More or less work has been done with a view of equipping the radio hand generators with an engine drive, and while this, to a certain extent, has been successful, a satisfactory engine has not yet been found. The sets so equipped, however, are giving very good service, and by their use make available several men in each case for other purposes who would be required to operate the hand generators.

Material is being assembled for the construction of a large radio station at Fort Bliss, which will be similar to the one now erected at Fort Sam Houston. Estimates have also been prepared for stations at Forts McIntosh and Huachuca, and it is expected that these stations will be erected during the coming year.

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While no large installations were made during this year, several of the Coast Artillery posts and harbor boats were equipped with 250-watt sets. They were the *Randol*, *Morrison*, *Anderson*, *Arnold*, *Getty*, *Brannan*, *Weeks*, *Pickering*, and *Reno*. These installations were made partly under the supervision of the Signal Corps. Sets installed on the harbor boats *Mifflin* and *Howard* were installed by the personnel of the Coast Artillery. Two hundred and fifty-watt table sets were also installed at Fort Constitution, Fort Caswell, Fort Moultrie, Fort Date, Fort Terry, and Fort San Jacinto. Fort Adams, R. I., was equipped with a 1-kilowatt coast defense radio station.

An additional motor generator set was installed in the radio station at Fort Winfield Scott, this set to operate from the direct-current post power system. With the installation of this set three sources of power are now available for the operation of the station and its continuous operation is practically assured.

The five mine planters in the United States, namely, *Armistead*, *Ringgold*, *Schofield*, *Ord*, and *Frank*, were equipped with 1-kilowatt radio sets, including the antenna and other necessary equipment. On several occasions, when the transports stationed on the Atlantic coast were placed in or out of commission, the Signal Corps has overhauled or dismantled the radio sets. The radio equipment on the trans-Pacific transports has been properly maintained, and such repairs as were necessary were made during the stay of these transports at San Francisco. At Fort Wood, New York Harbor, a new steel tower was erected to replace a wooden mast partially destroyed by storm.

The Signal Corps radio laboratory at the Bureau of Standards has continued to render valuable service in the improvement of the present radio equipment and in designing and testing such new apparatus as conditions have shown to be necessary. Improvements have been made in the pack and larger sizes of receiving sets, so that it is possible with the present sets to handle messages that would have been inaudible with the former types. The work of standardization of the radio equipment has been continued so as to secure as far as possible complete interchangeability of parts.

Mutual benefits have been derived by the cooperation of the laboratory of the Signal Corps with those maintained by the Department of Commerce and by the Navy Department, particularly in the constant interchange of data that has prevented a needless duplication of work.

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MILITARY AVIATION.

The concentration of the forces composing the punitive expedition to Mexico marked a distinct step in military aviation in the United States. It was the first time this branch of the service had been called upon to put a tactical unit into the field. There was only one such in the service, namely, a small squadron, the First, at San Antonio, Tex. This, while equipped with as good material as could be obtained at the time, had only eight low-powered machines. These machines at the time of their transportation to Columbus had been in service for many months. The altitudes encountered in Mexico, up

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to 12,000 feet, the vast distances to be covered, and the lack of cultivated areas and resources in general made this theater one of the hardest to operate in which any army had ever entered. The few machines were rapidly used up, although they did a great amount of flying and rendered extremely valuable service to the punitive expedition.

The urgent deficiency act of March 31, 1916, gave the aviation section of the Signal Corps $500,000, the greatest sum up to that time that had been appropriated at any one time for aviation in the Army. A board of officers of the aviation section, who were experts in the construction and purchase of material, was assembled at Washington and consulting engineers of the highest caliber obtained. This board recommended certain types of material to be bought, and, as a result, a squadron equipment of twelve 160–200 horsepower military tractor biplanes was purchased and delivered to the aero squadron with the punitive expedition in Mexico. Other material was purchased for the squadron, so that it gradually became a spendidly equipped organization complete in all details, that is, aeroplanes, motor trucks, portable machine shops, automatic photographic cameras, machine guns, shoulder rifles, bombs, and other accessories.

In spite of the success obtained in organizing and equipping this first squadron, although, indeed, much time and effort has been required to do so, it appears that even up to the present time the state of the art of aeroplane construction in this country is not satisfactory and it is still impossible to obtain suitable material in large amounts on short notice. Due also to the entire difference of the theater of operations of the American Army in Mexico from the European theater of war, the aeroplanes required in the United States must be of quite a different type. Many things relating to them remain to be learned and worked out before an entirely satisfactory machine is obtained.

One deficiency which made itself very apparent was the propeller difficulty that was experienced in the high altitudes and dry atmosphere of northern Mexico. For a while the difficulty of keeping propellers in condition and obtaining suitable ones nullified the operations of the squadron. This, however, proved in the end to be an advantage, because experience was gained in the construction of propellers that could have been obtained in no other way. All sorts of propellers were ordered, a propeller-making plant established at Columbus, and engineering talent all over the country enlisted in the solution of the problem. The results have been good, and the squadron is now in service condition. Indeed, it is reported that aeroplanes are habitually carrying the mails from Columbus to the commanding general's headquarters at Colonia Dublan some hundred miles away, the distance being covered in about 65 minutes.

As to the general development of material, the technical aero advisory and inspection board of the Signal Corps, assisted by consulting engineers, has sent out specifications for various types of aeroplanes, has assisted manufacturers in the design of equipment of all sorts, and has availed itself of all sources of information—the Bureau of Standards for the test of material, the opinions of distinguished engineers, and the actual trial of various devices in the air. In addition, aeroplanes of the latest type have been ordered from abroad.

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An inspection department, composed of civilian engineers, has been organized and distributed among the various factories that are manufacturing aeroplane equipment for the Army.

The field of inspection not only embraces the manufacture of all sorts of heavier-than-air equipment for the aviation section, but extends also to the units in the field and to the determination of what materials must be obtained in advance for possible emergencies.

An aerostatic division has been established in the aviation section. Its organization is now going forward and recommendations have been made that the first balloon school be established at Fort Omaha, Nebr. A large balloon shed, a hydrogen gas plant, and other equipment is already there. Captive balloon organizations will be equipped as soon as practicable and instruction with training dirigibles will be inaugurated.

The aero company in the Philippine Islands has been maintained as originally planned, and is gradually building its quarters, hangars, and equipment. It still has the old equipment of aeroplanes which will be replaced as soon as possible.

The Signal Corps Aviation School at San Diego, Cal., has continued to turn out expert military aviators, and, it is believed, that the principles of flying, as taught at this school and evidenced by its graduates, are second to none. A field officers' course in aviation has been established here in accordance with Paragraph V, Bulletin No. 35, War Department, September 13, 1916. There are at present 45 officers of the Army undergoing instruction at this institution, which is the greatest number that has ever been on duty at that place at one time. In addition, two officers of the Marine Corps are being trained and some enlisted men.

The matter of the location of the aviation school, to be permanently established in California, is receiving consideration, and a site will be purchased in the near future.

The site for an experimental and proving ground is now being selected and will be purchased as soon as a decision is reached. A proper site which fulfills all the conditions is quite difficult to obtain. It must be located near manufacturing centers, have water enough so that the firing of all sorts of ordnance and the dropping of explosive missiles may be carried on. It must be near railways, comparatively flat, and well drained.

The project for the development of the aviation section contemplates 7 aero squadrons for the Regular Army, 12 squadrons for the National Guard Divisions, and 5 for the defenses on both coasts besides aerostatic units for the mobile Army and Coast Artillery. The personnel for these will be made up from the Regular Army, both officers and enlisted men, of officers and enlisted men of the Reserve Corps, and of National Guard units. To train this personnel, the facilities of the civilian aviation schools will be utilized to their maximum, and finishing schools for such personnel have already been established and are being maintained at Chicago in the Central Department, and Mineola, Long Island, in the Eastern Department, by the aviation section.

* * * * * * *

The plans for the equipment of our foreign possessions with proper aero units are being carried out. The equipment for these units consists of hydroaeroplanes. Suitable ones are very difficult to obtain,

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but specifications covering high-powered machines of this character are now being sent out, and it is hoped within the near future to have adequate equipment along this line.

It is believed that the arrangements made will result in a growth of this branch of the service, which will not only be rapid, but which will be based on such sound principles as will be able to stand the test of any emergency. The field is an entirely new one for the United States Army, and there is no precedent to follow. As a result, therefore, it can not be foretold with certainty what time will be required to train personnel or develop material. Every known agency, however, for the development of both of these elements is being made use of in this country.

However, the experience gained in this country and the reports received from abroad indicate that a number of changes and additions will be necessary in any contemplated organic law for a separate air service, but the Chief Signal Officer stands ready to submit recommendations for such changes whenever the question is taken up.

The plan of the General Staff, approved by the Secretary of War, contemplates, and as I think very properly, the eventual separation of the aviation service from the Signal Corps. The separation of this service from any technical corps should take place when the air service is capable of standing alone. This time has not yet come.

In conclusion, I desire to report that all of the recommendations contained in my last annual report have been carried out with the exception of those relating to a detail system of officers for the Signal Corps, additional pay for enlisted telegraph operators, and increased salary for the position of chief clerk. These I renew and urgently recommend favorable action.

GEORGE P. SCRIVEN,
Brigadier General, Chief Signal Officer of the Army.

The SECRETARY OF WAR.

REPORT OF THE CHIEF OF COAST ARTILLERY.

WAR DEPARTMENT,
OFFICE OF THE CHIEF OF COAST ARTILLERY,
Washington, September 20, 1916.

SIR:

I submit herewith my annual report as Chief of Coast Artillery.

The most salient feature bearing on the efficiency of the Coast Artillery Corps, which stands out in relief in the past year, is the fact that, at its last session, Congress enacted practically all the recommendations made by the War Department in legislation proposed, with respect to the requirements of the arm as to increases of personnel and increases of matériel. It may be said that with these increases, and the approving policy indicated by Congress with respect to some additional new batteries needed for certain localities, to meet the increased power of attack of the most recent types of guns mounted on battleships, the coast fortifications will be able to meet successfully any attack that can reasonably be expected to be made upon them, or upon the cities, harbors, or interests which they guard, by the most powerful warships afloat or at present projected. It should be pointed out, however, that this increase in armament

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entails a small additional increase in the personnel to provide the manning bodies therefor. This additional personnel is indicated in the following table:

	Officers.	Enlisted men.
United States:		
Twenty-two 16-inch guns	62	1,607
Twenty-four 12-inch guns	50	1,356
Forty-eight 16-inch mortars	54	1,404
Twenty-three 6-inch guns	29	727
Four 3-inch guns	2	68
Six 16-inch howitzers	16	444
One 14-inch gun, movable	3	67
Two 4.7-inch guns, movable	1	40
One hundred and thirty-four 3-inch anti-aircraft guns	71	1,853
	288	7,566
Militia	144	3,783
Regulars	144	3,783
Insular Possessions:		
Four 16-inch guns	12	296
Twelve 12-inch guns	25	678
Twelve 16-inch mortars	13	351
Twenty-five 3-inch anti-aircraft guns	12	327
	62	1,652
Total Regulars	206	5,435

The effect of the recent legislation as to personnel is to provide a complete manning body for the gun and mine defenses of the oversea fortifications and for one-half of the gun defense and all of the mine defense of the home fortifications. The proposed distribution of this personnel, after the last increment of the increase carried in the Act approved June 3, 1916, goes into effect on July 1, 1920, is indicated in the following table:

Proposed distribution of the Coast Artillery Corps (exclusive of 18 bands).

Coast Defenses.	Officers.	Enlisted men.
United States:		
Portland	63	1,618
Portsmouth	17	392
Boston	68	1,787
New Bedford	13	229
Narragansett Bay	50	1,341
Long Island Sound	67	1,539
Eastern New York	34	810
Southern New York	48	1,403
Sandy Hook	33	927
Delaware	33	763
Baltimore	28	620
Potomac	22	512
Chesapeake Bay	38	966
Cape Fear	15	341
Charleston	23	686
Savannah	19	436
Key West	26	597
Tampa	23	461
Pensacola	23	558
Mobile	17	403
New Orleans	17	379
Galveston	23	575
San Diego	22	413
Los Angeles	23	403
San Francisco	67	1,999
Columbia	33	828
Puget Sound	76	2,131
Office Chief of Coast Artillery	7	.....
District staff	6	.....
Total United States	934	23,117

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Proposed distribution of the Coast Artillery Corps (exclusive of 18 bands)—Con.

Coast Defenses.	Officers.	Enlisted men.
Insular Possessions:		
Oahu	62	1,533
Manila Bay	93	2,470
Cristobal	56	1,154
Balboa	52	1,195
District staff	4	
Total Insular Possessions	267	6,352
Total United States and Insular Possessions	1,201	29,469

The officers by grades will be as follows:

1,201 total.
- 24 colonels.
- 24 lieutenant colonels.
- 72 majors.
- 360 captains.
- 360 first lieutenants.
- 360 second lieutenants.

1,201 total.

DEFICIENCY IN NATIONAL GUARD COAST ARTILLERY.

Attention is invited to the fact, however, that the policy of the War Department contemplates that one-half of the gun defense of the United States proper shall be provided from the National Guard of the seaboard States. The experience had up to the present time has not been encouraging in the extent to which the coast States have met their obligations in supplying coast artillerymen for that half of the coast guns set apart to them. The accompanying table will show the number of officers and men of the National Guard Coast Artillery of the seaboard States now provided and the deficiency which exists in this regard:

National Guard Coast Artillery.

State.	Officers.	Enlisted men.
Maine	51	843
New Hampshire	16	267
Massachusetts	51	908
Rhode Island	66	1,210
Connecticut	53	844
New York	124	3,207
New Jersey		
Delaware		
Maryland	3	65
District of Columbia	3	75
Virginia	3	136
North Carolina	22	414
South Carolina	19	373
Georgia	16	22
Florida		
Alabama		
Louisiana		
Texas		
California	42	768
Oregon	40	887
Washington	36	639
Total	545	10,860
Required for one-half the gun defense in the United States authorized prior to July 1, 1916	711	17,329
Deficiency	166	6,469

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Unless this deficiency is made up by the States, it will be necessary to consider whether the policy which has heretofore been taken as the guide will not have to be modified with respect to decreasing the quota assigned to each State, and increasing the Regular Coast Artillery by the amount of that decrease.

DETACHMENT OF COAST ARTILLERY OFFICERS AND MEN FROM THE FORTIFICATIONS.

The instruction of the personnel of the Coast Artillery Corps during the past year has been seriously interfered with by the detachment of considerable numbers of officers and men for service on the Mexican border, and also by the necessity for the detachment of officers and men from the coast fortifications for the purpose of assisting in giving instruction to civilians in military duties at the training camps at Plattsburg, N. Y., Tobyhanna, Pa., and Fort Oglethorpe, Ga., in the Eastern Department: and Monterey, Cal., American Lake, Wash., and Fort Douglas, Utah, in the Western Department; also for service as caretaker detachments at vacated mobile army posts.

Twenty per cent of the officers and 22 per cent of the men on duty at the coast fortifications (amounting to 80 officers and 2,912 men) in continental United States were detached for service on the Mexican border. In addition, there were detached 30 officers and 1,144 men for service with the civilian encampments and as caretaker detachments at mobile army posts in the Eastern Department, and 35 officers and 1,040 men for similar service in the Western Department. These detachments left so few officers and men on duty at the coast fortifications as to make it impracticable to carry out satisfactorily the annual scheme of instruction in any general way, and necessitated the abandonment of a carefully planned scheme of combined coast defense exercises with the Navy on the Atlantic coast.

Notwithstanding the fact that the details to the border and to the training camps interfered with the regular Coast Artillery work for the year, it was understood perfectly that emergency conditions existed, and it was realized that the interests which were served, under the circumstances, were paramount to our normal duties. The personnel was therefore animated by a spirit to assist most cheerfully in every way possible. It is gratifying to know that it has acquitted itself to the satisfaction of the department commanders.

COAST ARTILLERY DISTRICT COMMANDERS.

I desire to renew my recommendation of previous years that the commanding generals of Coast Artillery districts be made a part of the Coast Artillery Corps. For purposes of better administration of the technical requirements of the coast fortifications, and in order that more frequent technical inspections could be made by senior Coast Artillery officers of the training and instruction of the Coast Artillery personnel, a new administrative unit was established on February 15, 1913, called the Coast Artillery District. These districts consist of a grouping of the coast fortifications in such a way as to establish a unit for inspection and general supervision adequate to the capacities as to time and attention of one senior officer. Experience has shown that the effect of the establishment of these higher units has been to produce a better coordination and standardization

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as to the condition of the matériel and the character of the instruction of the personnel of the several forts which constitute the Coast Artillery district. Up to the present time, two of these Coast Artillery districts have been created on the Atlantic coast line; one, the North Atlantic Coast Artillery District, and the other the South Atlantic Coast Artillery District; and one on the Pacific coast called the Pacific Coast Artillery District. The North Atlantic Coast Artillery District includes all coast forts from Maine down to the defenses of the southern approaches to New York City, inclusive. The South Atlantic Coast Artillery District includes all coast forts from the Coast Defenses of the Delaware to those of Galveston, inclusive. The Pacific Coast Artillery District includes all the coast forts on the Pacific coast. The coast forts of Panama constitute a separate Coast Artillery district.

Coast Artillery districts are subdivisions of territorial department commands. The commanders of the Coast Artillery districts bear the same relation to department commanders that brigade commanders of the mobile army troops in departments bear to department commanders.

The duties of Coast Artillery district commanders are wholly and essentially of a Coast Artillery nature, involving an intimate knowledge of technical matters connected with the installation and use of the guns, mortars, mines, searchlights, and range-finding equipment of coast forts. Only officers can best discharge the functions of Coast Artillery district commanders who have risen to the higher grades of Coast Artillery through service in the lower grades.

The number of officers and troops included in Coast Artillery districts, the magnitude and importance of the interests of the United States involved in maintaining the fighting efficiency of the personnel and matériel located therein has been recognized by the War Department as warranting the assignment of officers of the grade of brigadier general to the command thereof. Accordingly, it has been the custom recently, when officers of the Coast Artillery Corps have been appointed to the grade of brigadier general of the line of the Army, to assign them to command of Coast Artillery districts.

It should be had in mind that in fixing the number of general officers of the line of the Army it was not contemplated that such assignments would be made. This statement will be made clear by appreciation of the fact that the legislation passed by the last Congress provides for 36 brigadier generals of the line of the Army who are required to command the 21 brigades of Infantry, 8 brigades of Cavalry, and 7 brigades of Field Artillery. It therefore follows that when general officers of the line are assigned to command of Coast Artillery districts, the needs of the mobile army are invaded. It would seem to be good policy and in the interests of good organization that the mobile army should not be deprived of any portion of its general officers by such assignments, but that separate provisions should be made therefor by law. It is recommended that legislation be recommended by the Secretary of War that will add to the Coast Artillery Corps brigadier generals of Coast Artillery, to command the Coast Artillery districts.

This matter was carefully considered by the General Staff in its report on the Organization of the Land Forces of the United States, August 10, 1912. Attention is invited to the following quotation from that report:

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RELATIONS BETWEEN THE COAST ARTILLERY AND THE MOBILE ARMY.

The land forces of the United States are divided into two distinct parts—the Coast Artillery and the mobile army. The coast fortifications are local in character and are designed to protect important seaports from direct naval attacks and naval raids, to prohibit hostile landings at particular places, to secure our naval bases in the absence of the fleet, to prohibit the use of certain harbors and waters as bases for naval operations against us, to secure safe havens for our vessels, and to release our fleet for offensive operations. The influence of coast fortifications is limited to the areas within the range of their guns, and while they must be recognized as of supreme importance, within the scope of their proper functions, it must not be supposed that they have any power to prevent invasion if we should lose command of the sea. The total length of our coast line is enormous, and the stretches covered by harbor defenses are and must remain very small compared with the unprotected intervals that lie between them. If we should lose the command of the sea, an invader would simply land in one of these intervals. It therefore follows that our ultimate defense depends upon defeating a mobile army of invasion, and this can be done only by having a mobile army prepared to operate in any possible theater of war. The complete defense of our coasts is therefore a problem of cooperation between Coast Artillery and mobile forces.

ESSENTIAL DIFFERENCES AFFECTING THE ADMINISTRATION OF COAST ARTILLERY AND THE MOBILE ARMY IN PEACE AND WAR.

The general relations between the coast fortresses and the mobile troops have already been indicated. Their essential difference lies in the fact that the Coast Artillery is local and will remain local both in peace and in war. The mobile forces, however, will not be confined to a definite territory. They occupy peace stations for purposes of training, but it can never be predicted in what theater of war they may be employed. The coast batteries that cover the entrance to New York Harbor will remain in their present positions in any contingencies, but the mobile forces that may be stationed in the vicinity of New York may be employed at any place within the sphere of national interest.

A correct organization of the two forces should, therefore, be based upon a recognition of these essential differences. The Coast Artillery is territorialized and may properly have a territorial organization in war and peace.

The mobile army, however, must be free to move and should not be tied by its peace administration to any particular locality. The present organization of our Army violates this principle. The same brigadier general commands mobile troops and immobile troops under a system of administration which must necessarily break down in war.

The organization of the Department of the Gulf is a typical example of this illogical arrangement. This department comprises 1 regiment of Infantry, 1 regiment of Cavalry, and 27 companies of Coast Artillery. The organization seems to be based on some idea of convenience for peace administration, but is not designed to meet any military contingency. It is unsound, because the command itself is an illogical command, it being impossible to conceive any military situation which would properly place those units under a single commander in war. It is also unsound, because it must be immediately disrupted in war and the whole machinery of administration broken up at the very time when definite organization is of supreme importance. It would therefore seem that a correct organization of our land forces should provide homogeneous commands for our brigadier generals in time of peace. This can be accomplished by grouping the present Coast Artillery districts into three Coast Artillery Inspections[1] and by giving a definite brigade and division organization to the mobile troops. Under this arrangement the eastern territorial region will comprise two Coast Artillery Inspections and the nucleus of the first division of the mobile army, with certain extradivisional auxiliaries. The central territorial region will comprise the nucleus of the second division of the mobile army, with two or more Cavalry brigades and other extradivisional troops. The western territorial region will comprise one Coast Artillery Inspection and the nucleus of the third division of the mobile army.

It is recommended that brigadier generals be assigned to the command of brigades of mobile troops or of Coast Artillery Inspections.

[1] Called "districts" in existing orders.

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The creation of the Coast Artillery districts by War Department order followed this recommendation of the General Staff, in so far as practicable without legislation, and Army Regulations have been drawn up prescribing the duties of Coast Artillery district commanders, making them analogous in all respects to those of brigade commanders in regard to matters of inspection and the standardization of instruction.

If legislation be enacted to provide general officers to command Coast Artillery districts, the number of brigadier generals authorized by such law should not exceed the proportion of brigadier generals due to the Coast Artillery Corps as a part of the line of the Army, based on the total legally authorized commissioned strength. If a law were to be passed providing for such number of brigadier generals of Coast Artillery, it should also provide that thereafter colonels of Coast Artillery should not be eligible for appointment as brigadier generals of the line of the Army at large. The effect of this would be to give to the Coast Artillery Corps its due proportion of brigadier generals and to reserve to the mobile army the vacancies of all brigadier generals to command Infantry, Cavalry, and Field Artillery brigades. Inasmuch as the present number of general officers of the line of the Army was fixed apart from any consideration of the needs of Coast Artillery districts, the appointment of these officers should not work any reduction in the present number of general officers of the line of the Army.

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VOCATIONAL TRAINING.

Vocational training had its origin in a Coast Artillery Instruction Order issued January 27, 1915. The following quotation is taken from that order:

> During the indoor season the artillery instruction period will be one and one-half hours. The remaining two hours of the daily instruction period will be devoted to courses in vocational instruction under the initiative, direction, and control of coast defense commanders. As many separate vocational courses will be inaugurated and conducted as may be possible, utilizing commissioned officers as supervisors of such courses, and the artillery noncommissioned staff officers, enlisted specialists, and rated men as instructors. Attendance upon these courses will be optional with the enlisted men. Among the courses that may be given are those in telephony, care and operation of combustion and steam engines, surveying, wire and radio telegraphy, firing and care of boilers, electric wiring, typewriting, bookkeeping, and stenography. These subjects are to be considered as merely suggestive, and it is not intended to exclude other vocational subjects which may suggest themselves to coast defense commanders. In so far as practicable the installed Coast Artillery matériel may be utilized in connection with this instruction.

Under this order the vocational training was established in all coast defense commands, and, in the continental United States, there were last year 1,919 men of the Coast Artillery Corps who took advantage of the opportunities to take these vocational courses. The numbers taking the various courses were as follows:

Course for electricians	266
Course for telephone operators and repair of telephones	128
Course for telegraph and radiotelegraph operators	257
Course for engineers (gas, oil, and steam)	393
Course for firemen	171
Course in machine-shop work	27
Course in clerical work, including bookkeeping and stenography	170
Course in drawing, map making, and blue printing	11
Course in baking and cooking	16

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Course in blacksmithing	37
Course in painting, plumbing, and bricklaying	21
Course for chauffeurs (automobiles and motor boats)	69
Course for searchlight operators	92
Course for carpenters	8
Course for volunteer commissions	25
Course in plastering	1
Course in model making	22
Course in printing	4
Course in music	20
Course in map reading and sketching	144
Course in mathematics	37
Total	1,919

This was about 17% of the total enlisted strength of Coast Artillery organizations in the United States.

New courses are being added, and it is believed that the reports for the present year will indicate a larger number of enlisted men who are taking advantage of vocational training.

TARGET PRACTICE.

During 1915, the percentages of hits in Coast Artillery target practice were as follows:

Yards.	14-inch rifle.			12-inch rifle.			10-inch rifle.			8-inch rifle.			6-inch rifle.		
	Number shots.	Number hits.	Per cent hits.	Number shots.	Number hits.	Per cent hits.	Number shots.	Number hits.	Per cent hits.	Number shots.	Number hits.	Per cent hits.	Number shots.	Number hits.	Per cent hits.
1,000-2,000															
2,000-3,000													80	30	44
3,000-4,000										7	7	100	190	47	25
4,000-5,000				5	0	0	7	5	71	14	10	71	46	21	46
5,000-6,000				14	11	79	49	27	55	21	9	43	86	20	23
6,000-7,000				78	43	58	44	24	55				32	1	3
7,000-8,000				60	34	57	61	15	25				36	1	2
8,000-9,000	7	3	43	42	16	38	56	15	27	14	0	0			
9,000-10,000				28	3	11	63	14	22						
10,000-11,000	7	0	0	136	41	30	119	20	17						
11,000-12,000				42	10	24	42	6	14						
12,000-13,000				7	0	0									
Totals	14	3	21	412	158	38	441	126	29	56	26	46	470	120	26

Yards.	5-inch rifle.			4.72-inch rifle.			4-inch rifle.			3-inch rifle.			12-inch mortars.		
	Number shots.	Number hits.	Per cent hits.	Number shots.	Number hits.	Per cent hits.	Number shots.	Number hits.	Per cent hits.	Number shots.	Number hits.	Per cent hits.	Number shots.	Number hits.	Per cent hits.
1,000-2,000				40	7	18				160	78	49			
2,000-3,000				40	8	20				921	377	41	12	0	0
3,000-4,000	20	1	5	80	4	5				1,065	312	29	144	16	11
4,000-5,000	9	1	11				80	8	10	80	2	3	231	40	17
5,000-6,000	83	2	2										135	29	21
6,000-7,000	28	1	4										174	33	19
7,000-8,000													173	24	14
8,000-9,000													77	10	13
9,000-10,000													17	2	12
10,000-11,000													18	2	11
11,000-12,000													99	10	10
12,000-13,000													12	0	0
Totals	140	5	4	160	19	12	80	8	10	2,226	769	35	1,092	166	15

NOTE.—Mean corrected range of practice taken as the range.

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The target for the 8, 10, 12, and 14 inch guns was a battleship silhouette; for the 5 and 6 inch guns a destroyer silhouette: and for the 3, 4, and 4.72 inch guns a rectangle 10 feet by 24 feet. The target for mortars was the deck of a battleship.

Under the 1916 Coast Artillery Instruction Order the ammunition allowance is divided into two parts. The first part is to be fired under the regulations prescribed in the order. The second part is to be fired under programs submitted by coast defense commanders when approved by district commanders. This plan has resulted in trying out many interesting problems, such as firing at land targets with mortars.

From the records received thus far, it appears that the 1916 percentages of hits will be greater than the 1915 percentages with all calibers.

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AIRCRAFT.

The signs of the times point clearly to the necessity of considering aeroplanes as part of the normal equipment of coast fortifications. Air reconnoisance work as conducted by aviators is as important in the way of the value of the information given to a coast defense commander, both with respect to a seaward attack or a landward attack, as it is to the commander of a mobile field force in interior land operations.

Apart from this, further experimentation with the Hammond radio torpedo indicates that the torpedo may be controlled in its movements from an aeroplane. This new feature of this torpedo enormously increases its value, and, in doing so, introduces the absolute necessity of supplying aeroplanes to the coast defenses.

It is believed that aeroplanes should be issued to the Coast Artillery Corps for use in connection with the defense of the fortifications by the Signal Corps in the same way as observing instruments are furnished by the Ordnance Department for range finding use. It will then be necessary to instruct a personnel in the special use of aeroplanes involved in Coast Artillery work.

It is therefore recommended that in the estimates which are submitted to Congress for the supply of aeroplanes, the needs of the Coast Artillery Corps be given consideration.

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COAST ARTILLERY SCHOOL.

The instruction conducted at this school enlarges the field of instruction of Coast Artillery officers and educates and trains especially selected enlisted men for the higher grades in the Coast Artillery noncommissioned staff. The curriculum continues to be one of the important features for increasing the efficiency of the Coast Artillery personnel.

Officers' division.—There were graduated last year 39 officers. None failed to qualify. The work in this division was up to the standard and was conducted satisfactorily. Two officers of the Brazilian Navy and one officer of the Brazilian Artillery reported to take the course of instruction at this school. They pursued only a part of the course and left in March, 1915, in compliance with

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instructions from their Government. One officer of the Chilean Navy is now pursuing the course of instruction. Ten officers of the Coast Artillery Militia pursued the regular course in gunnery during the last year. The following States were represented: California, Connecticut, Maine, Massachusetts, New York, North Carolina, Oregon, Rhode Island, and Washington.

Enlisted men's division.—There are now under instruction 67 enlisted men. Their work has been satisfactory, and this division of the school is especially useful in educating and training specially selected enlisted men for various grades in the Coast Artillery noncommissioned staff. Commencing in January, 1916, a clerical course was added to this division; the graduates of this course to be eligible for appointment as sergeants major, junior grade, Coast Artillery Corps. The subjects pursued in the clerical course are stenography and typewriting; correspondence, to include preparation of official papers, orders, briefing, indexing, and filing; general office training; and office work.

The usefulness of this division is not confined to increasing military efficiency, but it is a seat of vocational training for enlisted men who pursue several courses fitting them for civilian pursuits. A further continuation of vocational training was conducted last year by permitting 41 of the enlisted men of the Coast Defenses of Chesapeake Bay to pursue vocational training in various departments of both divisions of the school.

On account of the increased number of enlisted specialists authorized by the National Defense Act, approved June 3, 1916, this division of the school will be required to train more selected men for the various grades in the Coast Artillery noncommissioned staff. Tentative steps have been taken to increase the number of enlisted students for the various courses, as indicated below:

Artillery course	15
Electrical course	70
Clerical course	15
Radio course	30
	130

COAST ARTILLERY BOARD.

During the past year the Coast Artillery Board has continued its work of conducting practical experiments and tests looking to the improvements of arillery matériel and methods, of investigating and reporting on such additional matters as do not require experiment or test as may have been referred to it, and of making ballistic and other computations demanded by our system of firing guns and mortars.

The following subjects are some of the more important of those considered by the board during the year ended June 30, 1916:

1. Ballistics, including the calculation of elevation and range tables for various guns and mortars; a study of the drift discrepancies in mortar range tables; a study of the effect of temperature on droop; a study of the jump for turret mounts; and a study of the zone arrangement for mortar ammunition.

2. Correction devices, involving the calculation of data for constructing curves for guns.

3. The test of various devices for transmitting data.

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4. A study of the type emplacements for mortars and guns.
5. The test of various appliances designed for use in fire control and fire direction.
6. The test of cable and other material used in submarine mining.
7. A study of the movable Coast Artillery armament.
8. Test of the Diesel engine.
9. Test of various coincidence range finders.
10. Test of the Beck searchlight.
11. Study of the subject of sights and observation instruments for anti-aircraft guns.
12. Test of devices for signaling by use of searchlights.

TORPEDO DEPOT.

The Torpedo Depot is, under the supervision of the Chief of Coast Artillery, charged with the design, purchase, and supply of all matériel for the submarine mine service of the Coast Artillery Corps.

During the past year this depot has continued its work of improving existing matériel and of designing new matériel to meet special requirements. In this connection a comprehensive and important program of experimental work was carried out by this depot in August and September with the U. S. Mine Planter *General Samuel M. Mills* in the Coast Defenses of Long Island Sound.

E. M. WEAVER,
Major General, Chief of Coast Artillery.

The CHIEF OF STAFF UNITED STATES ARMY.

REPORT OF CHIEF OF THE MILITIA BUREAU.

WAR DEPARTMENT, MILITIA BUREAU,
Washington, D. C., October 1, 1916.

SIR: The following annual report concerning the Organized Militia and National Guard affairs is submitted. The report is brought up to date as far as practicable; however, the mobilization of the National Guard is touched on only incidentally and in fiscal matters the report is made to include June 30, 1916, only.

GENERAL REMARKS.

According to the latest returns prior to June 18 the total reported strength of the Organized Militia and the National Guard is 8,589 commissioned officers and 123,605 enlisted men, a decrease over last year of 116 officers and an increase of 2,932 enlisted men. Of this force 1,451 officers and 6,131 enlisted men belong to the staff and noncombatant branches, 456 officers and 8,084 enlisted men belong to the Coast Artillery, and 6,682 officers and 109,390 enlisted men belong to the mobile branches (Engineers, Field Artillery, Cavalry, and Infantry). The plan of organizing the mobile troops with auxiliary forces of the National Guard into 12 tactical divisions has made some progress since last year. However, no division is complete. The division in the State of New York, and the one in Pennsylvania are the most advanced in divisional organization, though on June 30

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both were deficient in auxiliary units. The most striking deficiency in the divisions called out from the States of New York and Pennsylvania was in machine guns, there being at the date of call only 8 machine guns with the New York division when there should have been 40. In Pennsylvania there was a complete deficiency of 40 machine guns. In trained personnel, there was a greater lack than in machine guns and equipment. On a divisional basis there is an excess of Infantry units equivalent to 17 regiments and a deficiency in other elements as follows: Fifty-two troops of Cavalry, 58 batteries of Field Artillery, 49 companies of machine guns, 8¼ battalions of Engineers, 26 field hospitals, 17 ambulance companies, 12 medical-supply detachments, and 17 sanitary detachments. There is a deficiency in Coast Artillery of 261 officers and 9,239 enlisted men based on Table 3, O. C. S., C. A. D., September 17, 1915. There is a deficiency in the total numerical strength of the National Guard of 18,195 enlisted men below the minimum authorized peace strength.

The mobilization of the major portion of the National Guard under call of June 18 was not completely accomplished until after the termination of the fiscal year Data have been collected with regard to it and these data, with a study of measures to be taken with a view to facilitating and expediting mobilization, will be made the subject of a separate report at a later date.

Organizations called into the service of the United States on May 9, 1916, and June 18, 1916, were as follows:

Infantry, 108 regiments and 7 separate battalions.

Cavalry, 3 regiments, 13 separate squadrons, and 22 separate troops.

Field Artillery, 6 regiments, 12 separate battalions, and 17 separate batteries.

Engineers, 3 battalions and 11 separate companies.

Signal, 4 battalions, 16 separate companies, and 1 aero company.

Sanitary troops, 23 ambulance companies and 37 field hospitals.

Of the organizations shown there were already organized on June 18, 2 Infantry divisions, 19 Infantry brigades, and 1 Artillery brigade. On July 31, 1916, reports show that 110,957 were on the border and 40,139 in State mobilization camps, an aggregate of 151,096. The aggregate strength was short the authorized minimum peace strength 4,083, and short, war strength, 97,350.

Forty-four officers of the Regular Army were commissioned in the National Guard in the service of the United States, 3 as brigadier generals, 10 as colonels, 27 as lieutenant colonels, and 4 as majors. Noncommissioned officers of the Regular Army were commissioned in the National Guard in the service of the United States as follows: Thirty-four in Infantry, 9 in Cavalry, 8 in Field Artillery and 1 in Signal Corps. Two major generals and 24 brigadier generals of the National Guard, in addition to the 3 brigadier generals commissioned in the National Guard from the Regular Army, were mustered into the service of the United States.

Reports show that 85 per cent of the numerical strength of the National Guard were present at the annual armory inspection, and that 56,563 officers and enlisted men, or about 43 per cent, of the reported strength, attended at least 24 drills of one hour and a half each during the year. Six special camps of instruction were held for officers and noncommissioned officers at which there were present

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283 commissioned officers and 441 noncommissioned officers. Other camps of instruction which were planned had to be abandoned on account of the call into the service of the United States.

Reports on small-arms target practice for the calendar year 1915 are incomplete. Four States have submitted no reports. In the remaining States of a strength of 108,561 men armed with the rifle only 63,841, or 58 per cent, fired range practice. This is a slight improvement over 1914. In general, instruction in small-arms firing is still unsatisfactory. In the present calendar year 128 companies of Coast Artillery attended camps of instruction at or near coast-defense batteries. The reports on 46 of these companies have been received at this date and show that 72 per cent of these organizations had service practice, the remainder being prevented from firing by reason of fog. Six batteries of Field Artillery attended camps of instruction and one battery had service practice prior to the call of June 18, 1916.

During the past fiscal year the system of property accountability has been unsatisfactory in the survey and disposal of unserviceable property and the enforcement of strict rules of accountability; however, it is believed that the act of June 3, 1916, will remedy these defects partially if not wholly. There was a deficiency of 87 wagons with harness to equip the field and combat trains for the existing units called into the service of the United States. Available funds were used during the year to decrease the deficiency shown last year. Three hundred and ninety-nine horses were purchased and issued to the Field Artillery and are available at all times for the use of 102 batteries.

The force of the act of June 3, 1916, can not be measured in full at this time. The effect of this act as a whole can not be other than beneficial in rendering the National Guard a more effective force for the United States. Briefly, it enables the Militia Bureau—

1. To enforce a strict responsibility for property.
2. To more effectually control the expenditure of funds.
3. To specify the requirements for pay for armory service as well as for service in camps of instruction.
4. To prescribe the training and attendance for organizations.
5. To insist upon the keeping of the necessary records.
6. To make uniform and effective the physical examinations.
7. To inquire into and specify the qualifications for officers.
8. To prescribe thorough organization of all units.
9. To control the organization, and the proportion, of units in the different arms of the service.
10. To increase the number of horses for instruction of Field Artillery.
11. To provide horses for the instruction of Cavalry.
12. To increase the number of commissioned and noncommissioned officers of the Regular Army as instructors for the National Guard.
13. To provide for additional instruction visits by inspector-instructors and sergeant-instructors on all units.

Owing to the brief interval between the approval of this act on June 3 and the date, June 18, when the greater portion of the Organized Militia and the National Guard were called into the service of the United States, no time was afforded for the adequate study of the new

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law and the determination of its exact application. The essential difference between the old Organized Militia law and the new National Guard law lies in the new oath of allegiance to the United States. The conversion of the Organized Militia into National Guard had not been completely accomplished on June 18. The effect of pay for armory service in view of the increased requirements is yet to be determined and its full effect can not be judged until the National Guard in the service of the United States has been mustered out and has resumed its normal peace training. The plan of organizing the mobile and auxiliary troops of the National Guard into 12 tactical divisions will be modified both as to organizations specified and as to geographical distribution in order to adapt it to this act. A few men have passed from three years' service into the National Guard Reserve. The growth and control of the reserve are to be studied with interest. Regulations are now being prepared to put into full effect the provisions of this new law. An increase in the number of officers and noncommissioned officers of the Regular Army as instructors for the National Guard and a closer association of the National Guard with units of the Regular Army at summer camps of instruction should greatly improve the discipline and training of the National Guard. These advantages have been provided for by the new law in a greater degree than ever before and it is to be hoped that the Regular Army may be found to be available to meet every demand made upon it in these respects. If, after all that has been provided by law in the way of facilities and inducements, there is inability to attain a reasonable degree of efficiency, the failure must be attributed to defects inherent in the militia system which are beyond correction by legislative action.

The subjects included in this summary, except the mobilization of the National Guard, are treated more fully under appropriate heads in the body of the report.

ORGANIZATION.

The act of June 3, 1916, has made important and far-reaching changes in the organization of the National Guard, and the Federal Government now has the requisite authority to prescribe the particular units as to branch or arm of service to be maintained in order to secure a force which, when combined, shall form complete higher tactical units. The necessity for the proper quota of auxiliary troops, which are and have always been deficient in the National Guard, due to the desire of the several States to maintain Infantry units, has been brought forcibly to the attention of military authorities by the events of the war in Europe, and the new organization for the National Guard requires additional Field Artillery for Infantry divisions.

It must be accepted as a principle that the quota of auxiliary troops required for the higher tactical organization of the National Guard should be provided before additional Infantry organizations should be formed, although existing Infantry organizations in States where the eventual requirements of the act of June 3, 1916, will require their continued existence should not be disbanded except where the conditions in a particular State require a transfer to some other organization. Although there is authorization in the law for the completion of the complete five years' quota for each State, this provision must be considered in connection with the efficiency of existing organizations, and estimates made for their supply and payment.

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The past year has shown a slight increase in the auxiliary troops required for the higher tactical organizations of the National Guard, which was accentuated to some extent by the mobilization of the National Guard in response to the President's call of June 18, but nevertheless the program of 12 tactical divisions first published to the militia in 1914 is yet far from completion, and, except in the States of New York and Pennsylvania, is unfinished, through the general reluctance or inability of the States to organize and maintain the necessary auxiliary troops.

There has been no great increase in auxiliary troops except in the States mentioned above, and the deficiency not only in Artillery, Cavalry, and Engineers, but in the supply train personnel is marked, and is the greatest obstacle to the proper tactical organization of the National Guard of the country.

There is still a surplus of Infantry for the 12-division plan, and nearly enough to complete the organization of the National Guard which may reasonably be expected by the end of five years.

With a few exceptions the average enlisted strength at which organizations have been maintained during the past year is too low for effective military training, and as a result the number of commissioned officers is entirely too large for the strength of enlisted men. This represents small organizations, weak in enlisted men and calls for a large number of recruits upon mobilization, whereas a proper basis would be to have fewer organizations, at a higher effective strength.

The present minimum strength fixed by the War Department is too low for effective organizations and will eventually be raised to the peace strength of similar organizations in the Regular Army, representing an increase of approximately 35 per cent in Infantry and Coast Artillery organizations, but only about 5 per cent in the Cavalry and Field Artillery. The advantages of large organizations as effective military units are manifest and beyond argument. Not only will the National Guard units be in a better position to respond for Federal service, and have sufficient men to undergo proper training, but they will also turn a large number of men into the reserves, and the cost of maintenance, including pay and equipment, will be put to a better purpose. The overhead charges in a small regiment are practically the same as a large regiment, since the number of officers is the same and the number of noncommissioned officers is only slightly smaller, while the privates are the men required to fight battles, and they should be trained in time of peace. The fewer enlisted men that are required to recruit organizations after the call for service has gone forth the better.

The new organization set forth in the act of June 3, 1916, particularly in respect to regiments, represents a distinct advance in that the several provisional units, such as machine-gun, headquarters, and supply companies, are now permanent organizations in a regiment, and the obvious disadvantages of the detailed system has been done away with. Full conformity to the new organization will be required of all National Guard regiments prior to July 1, 1917.

New organization tables for the Regular Army conforming to the provisions of the act of June 3, 1916, are now being prepared by the War Department. With the exception of the authorized minimum strength, they will govern the organizations of the National Guard and will obviate the necessity for the preparation of separate tables.

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As a war measure the organizations of the National Guard should conform as near as practicable to that prescribed for the Regular Army.

INFANTRY.

ORGANIZATION.

The organization has been changed but little in the past year. The policy of encouraging the transforming of excess Infantry into auxiliary arms so as to produce a balanced force has been adhered to, as well as that of inducing Infantry regiments to adopt the provisional organization of a headquarters, a supply, and a machine-gun company. The progress along these two lines is encouraging, though not great, and will be increased materially through the required compliance with the act of June 3, 1916.

STRENGTH.

The prescribed minimum enlisted strength for the Infantry company is to be 65 until June 30, 1917, after which the minimum should be raised as rapidly as is possible until a strength of 100 is reached. Many companies were below 65 at the last annual inspection, and these were again warned that such deficiency would not be further tolerated, for the reason that an organization without a proper strength is of little Federal value and does not afford the necessary instrumentality for the proper training of the commissioned officers. As a result of the annual armory inspection held in January, February, and March, 1916, Federal recognition was withdrawn from a large number of companies which were deficient and in which there was no reasonable promise of improvement, and a larger number were placed on probation, as they were not efficient for Federal purposes.

The deficiencies in almost all cases were due to the lack of trained officers, which meant the corresponding lack of training and a consequent lack of interest on the part of enlisted men.

To afford reasonable means of complying with the new law as to the increased quota in congressional districts and the requirements as to the strength of companies, it is advisable that towns where conditions are favorable be allowed to raise parts of companies when it is found difficult to raise an entire company in any one place.

No detachment should consist of less than four squads and one officer (35 men, a war strength platoon). An examination of the inspection reports of previous years shows that this is just about the strength that many towns turn out for an ordinary company drill assembly. These detachments should have permanent armories, so that property can be cared for properly, and there should always be a commissioned officer to insure proper supervision.

THEORETICAL AND ARMORY INSTRUCTION OF INFANTRY.

There has been much commendable effort made to advance the theoretical instruction of Infantry, but an examination of the annual reports indicates that in many cases such instruction suffers materially through the lack of trained officers and noncommissioned officers, and a larger effort must be made in their instruction, for without competent officers and noncommissioned officers, and intelligent supervision on the part of field officers, military efficiency can not be attained.

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The theoretical and armory instruction should be based more upon the idea of teaching in and about the armory, the fundamentals upon which the field instruction can be built up, looking outward to field work, rather than limiting the drill and thought to those things which heretofore have been practiced in armory instruction and which have not proved sufficiently interesting to hold the attention and interest of the enlisted men. The latter will more readily and frequently attend drills and give their attention if they feel they are actually being taught those things that prepare them to be soldiers in the field than if they are put through only disciplinary exercises, which an ill-prepared officer may continue and repeat without exposing his ignorance.

More attention should be given to actual physical training in armory instruction; a lively period of 10 or 15 minutes as a regular part of the instruction will be of great physical value to the individual.

The theoretical instruction of officers has made some progress, but the authorization of the use of textbooks while preparing answers in the correspondence school course has not had a good effect, and it is evident that this method will have to be abandoned.

PRACTICAL INSTRUCTION.

During the period covered by this report, outside of the instruction in armories, the practical instruction of Infantry has been confined to camps of instruction for officers and noncommissioned officers and State camps of instruction. A camp of instruction for officers and noncommissioned officers that seemed to be quite successful was one in which the officers and noncommissioned officers were organized as a provisional company and given as such all the detailed instruction pertaining to it and were required to undergo the drill of subordinates. It is thought that such camps of instruction would prove of large value if more generally held.

In order to indicate to organizations what they would be required to undergo in their field camps of instruction, advance sheets covering that part of the field inspection report which pertains to instructions were sent out by the Militia Bureau, so that commanders might not be taken by surprise nor waste their efforts in other undertakings than those which the Militia Bureau thought profitable in field training. A bulletin was also prepared calling attention to the need of enlisted cooks in the companies, so that they might be free from the former system of hiring cooks and become efficient in this important part of military instruction.

The calls to Federal service on May 9 and June 18, 1916, disorganized the plans of many organizations, so that it would be unprofitable to attempt to make a detailed comparison of the kind and degree of instruction in the different States. The act of June 3, 1916, with the added requirements of 48 drills and 15 days' field instruction, should mean a considerable future progress.

The statement that "the main body and basis of an army is the Infantry" is as true as ever, and will continue to be so as far as one can see, but it is the more and more necessary that they should be well trained in all those things which would make efficient infantry, some of which are good marching ability; marksmanship; ability to take care of oneself in the field, both in a tactical and in an administrative way; to scout; to find one's way; to dig a trench; to observe

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the enemy; to communicate information; to prepare food; to protect oneself against the elements; and to conserve one's energy against disease. The officer must, in addition, understand how to direct, control, and protect the organization, so that the combined individual effort will be used to advantage.

The nearer we can approach the imparting of all instruction by the officers responsible for the organization the better will be the results. Too much dependence should not be placed upon the inspector-instructors, for by so doing the personnel instructed deprive themselves of the legitimate growth that they are entitled to in the exercise of their normal functions.

If officers and noncommissioned officers are new to their office, they should be given a short and comprehensive course of intensive training to prepare them for their positions before entering upon their new duties. If they are interested and capable, it will be of great benefit, and if they are not their deficiencies will appear and steps should be taken for their elimination.

CAVALRY.

The plan of organization set forth in Circular No. 19, Division of Militia Affairs, series of 1914, calling for 27 regiments of Cavalry for the National Guard, has been followed during the past year, and there has been an addition of 21 troops and 2 machine-gun troops, and the disbanding of 5 troops, making the equivalent of $9\frac{5}{2}$ regiments of Cavalry in existence on June 30, while the organization of 3 regiments has been completed by headquarters, machine-gun, and supply troops. There has been a tendency toward the completion of battle units, such as squadrons, and a consequent reduction in the number of separate troops. This line of progress should be encouraged and, as far as practicable, there should be no Cavalry organizations in a State less than a squadron, unless it be a machine-gun troop, which under existing law is one of the 4 regimental combatant units.

There has been authorized for each separate squadron a detachment from the headquarters, and supply troops, which will serve for administrative and supply purposes, and yet when the provisional regiments are combined the entire regimental personnel, excepting the colonel and lieutenant colonel, will be complete. There is no provision in the act of June 3, 1916, by which such regiments can be combined, except when drafted into the United States service, and this handicap can only be overcome by the expansion of existing Cavalry organizations into complete regiments entirely within the boundaries of a single State.

It may be accepted as a correct principle that the complete Cavalry regiment is the proper basis for organization and will attain a higher grade of efficiency than detachments divided among two or more States.

Under section 90 of the Act of June 3, 1916, there is a provision for the purchase or issue of not to exceed 32 horses for the use of each troop, and provisions are also made for the issue of forage and bedding and for shoeing and veterinary supplies and the employment and pay of not to exceed 5 enlisted men or caretakers and stablemen. It is anticipated that the measures, provided adequate funds are available, will result in increased efficiency of existing Cavalry organizations and as a stimulus for the organization of new units.

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The new Cavalry regulations are expected to be published before the commencement of the next outdoor instructional season, and in as much as they embrace not only drill regulations but form a complete manual of cavalry, they should prove of great value to the National Guard.

There has been no marked improvement in armory instruction throughout the past year, and the standard in this form of training is not uniform, and in many instances there is a great lack of thoroughness and a lack of concentration on strictly essential training subjects.

The field instruction during the summer of 1916 has been incident to the muster into Federal service of practically every Cavalry unit of the National Guard and should result in great benefit and the most marked progress in real training of officers and enlisted men. In each instance Cavalry units ordered to the border service have been promptly equipped with their full allowance of animals and transportation, have been provided with competent instructors from the Regular Army, and in many instances have entered upon actual field duties by forming part of the border patrol. At the date of publication full reports of the benefits derived from Federal service have not been received.

The following new Cavalry units have been organized during the past year:

Colorado, 1 troop.
District of Columbia, 1 troop.
Hawaii, 1 troop.
Illinois, 1 machine-gun troop.
Iowa, 1 squadron.
Kansas, 1 troop.
Montana, 1 troop.
Pennsylvania, 1 machine-gun troop.
Rhode Island, 1 troop.
South Carolina, 1 troop.
Tennessee, 1 troop.
Texas, 1 troop.
Utah, 2 squadrons.
Virginia, 1 squadron.

There has been some improvement in equitation, but no satisfactory progress can be made in this essential form of training until each troop has a sufficient number of mounts to enable it to carry out a systematic course as a part of the armory training. The short period available at camps of instruction can properly be devoted to more advanced training.

The following statement shows the mounts used by National Guard Cavalry at the time of mobilization, June 18, 1916:

Horses owned by State	153
Horses owned by private parties	579
Horses owned by organizations	1,092
Total	1,824

These animals were distributed among 88 troops in 20 States. Several States failed to provide mounts for their Cavalry organizations except those hired for purposes of instruction.

Comments on target practice appear under the general subject.

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FIELD ARTILLERY.

Due to the influence of the European war and to the mobilization of the National Guard, there has been an unprecedented activity during the past year in both the organization and the training of the Field Artillery of the National Guard.

Since the date of the last report, October 1, 1915, the following new units have been completed:

Massachusetts, one battalion and one regimental headquarters.

Connecticut, five batteries, one headquarters company, and one supply company.

New York, one regiment.

Pennsylvania, two regiments, two batteries, and one regimental and two battalion headquarters.

New Jersey, one battery.

Maryland, one battery.

Virginia, one battery.

District of Columbia, one battery.

Illinois, one battalion and one regimental headquarters.

Colorado, one battery and one battalion headquarters.

Wisconsin, two batteries.

The result shows a gain of 36 batteries.

The following table shows the existing units of Field Artillery and the number required for the 12 National Guard divisions. The shortage is increased over that shown in the last report by the requirement of the Act of June 3, 1916, that an Infantry division shall have three regiments of Field Artillery instead of two, as prescribed by the Tables of Organization, 1914:

Division.	States comprising divisional districts.	Batteries.	
		Organized.	Shortage.
Fifth	Maine, New Hampshire (1 battery), Vermont, Massachusetts (1 regiment), Rhode Island (1 battery), Connecticut (6 batteries).	14	4
Sixth	New York (3 regiments)	18	.....
Seventh	Pennsylvania (3 regiments)	18	.....
Eighth	New Jersey (3 batteries), Delaware, Maryland (1 battery), Virginia (4 batteries), District of Columbia (2 batteries)	10	8
Ninth	North Carolina, South Carolina, Georgia (1 battalion), Florida	3	15
Tenth	Kentucky, Tennessee, Mississippi, Alabama (2 batteries)	2	16
Eleventh	Michigan (2 batteries), Ohio (1 battalion)	5	13
Twelfth	Illinois (1 regiment), Indiana (1 battalion)	9	9
Thirteenth	North Dakota, South Dakota, Minnesota (1 regiment), Wisconsin (3 batteries), Iowa (1 battalion).	12	6
Fourteenth	Wyoming, Colorado (1 battalion), Nebraska, Kansas (1 battery), Missouri (1 battalion).	7	11
Fifteenth	New Mexico (1 battery), Oklahoma, Texas (1 battery), Arkansas, Louisiana (1 battalion).	5	13
Sixteenth	Montana, Washington, Oregon (1 battery), Idaho, California (1 battalion), Nevada, Utah (1 battery), Arizona.	5	13
	Total	108	108

In several cases States have expressed a desire to organize batteries, but upon inspection it was found that the armory facilities were inadequate for the safeguarding of the matériel and the instruction of the personnel, and the State authorities were unable to provide or to guarantee the permanency of such facilities. The cost of armories appears to be the principal reason for the failure of most of the States concerned to supply the Field Artillery organizations

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allotted to them by Circular No. 19, Division of Militia Affairs, 1914. The excess cost of armories for Field Artillery over the cost of armories for other arms has been largely balanced by the extra allotments from Federal funds for this arm. The distribution of the appropriation under the act of May 27, 1908, for the fiscal year 1916 was three times as great per man for Field Artillery as for Infantry, and amounted to a total of $206,099.50 for the former arm. A special appropriation of $200,000 was also made for the fiscal year 1916 to pay mechanics and helpers and to purchase forage and other supplies for horses for Field Artillery of the Organized Militia. The law also authorized the purchase of horses for Field Artillery from the allotments to the States under section 1661, Revised Statutes, and the act of May 27, 1908. As a result of these provisions, all batteries were furnished with mechanics to care for the matériel, and those that maintained horses employed a liberal allowance of men to care for the animals. At the time of the mobilization of the National Guard on June 18, 1916, horses were being maintained for batteries and headquarters detachments as follows:

Condemned Regular Army horses	159
Horses purchased from Federal funds	399
Privately owned horses	354
Total	912

These animals were distributed among 74 batteries in 24 States. The States of Alabama, California, Georgia, and Texas failed to take advantage of the opportunity to maintain horses for their Field Artillery from Federal funds.

Table 16 gives information as to conditions existing at the inspection in 1916 under section 14 of the militia law.

The most serious deficiency revealed by the reports was the lack of organized and instructed regimental and battalion headquarters detachments. Field Artillery can not perform its functions in war without the specialists who compose these detachments. In order to secure them, it became necessary to make the continued recognition of the delinquent units conditional upon the procurement of a suitable personnel prior to the next inspection.

As a result of the deficiencies revealed by the inspection in attendance at drills, instruction, and armory facilities, it became necessary to withdraw Federal recognition from four batteries and to make the continued recognition of six others conditional upon adequate improvement prior to a subsequent inspection. The batteries from which recognition was withdrawn were reorganized with an improved personnel and those that were conditioned were mustered into the service of the United States before the expiration of the probationary period.

In some cases it appeared that the horses issued to organizations were not being used for the training of the members in mounted duties and exercises but that they were largely devoted to riding on the road for pleasure or to exercises of little military value. Such units were informed that a failure to comply with the purposes for which the horses were issued would result in the withdrawal of the animals and of the supplies and allowances authorized for their maintenance.

There is a general deficiency in revolver and subcaliber practice. In many cases improvement could be made by the construction of ranges at or near the armories.

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While the total enlisted strength in many units still remains far below the peace strength, there was a marked improvement in the attendance at drills, due probably to the system of credits for such attendance on the ratings of organizations, as published in Circular Letter 52181.4, Division of Militia Affairs, 1915.

The allotment of Federal funds for the payment of mechanics has resulted in a great improvement in the care of the material. No deficiency of this nature was reported during the year.

ARMORY INSTRUCTION.

On account of the limited allotments to the Division of Militia Affairs for the travel of inspector-instructors during the fiscal year 1916, it was necessary to restrict their presence with each unit to only three visits. In order to utilize the time to the best advantage, the following course for armory instruction was prescribed:

(*a*) Instruction and examination of officers and enlisted men for qualifications as gunners.

(*b*) Instruction and examination of batteries in the proficiency of the gun squads, and, where horses were available, in the proficiency of the drivers and the horsemanship of the personnel.

(*c*) Correspondence courses for officers and noncommissioned officers in the basic course, prescribed by Circular No. 3, Division of Militia Affairs, 1914, with the addition of chapter 5, Part III, Drill Regulations for Field Artillery, the employment of special details and special methods for determining firing data. Officers who were known to be proficient in the subjects named were authorized to take a correspondence course in the subjects prescribed for year A. Each course included instruction and examination in the solution of map problems involving the employment of Field Artillery.

The effect of this order was to arouse extraordinary enthusiasm on the part of a portion of the Field Artillery. In some cases the demand for the services of the inspector-instructors to conduct examinations soon became so great that they found it impossible to conduct correspondence courses or to give instruction in gunnery. Some States generously made up the deficiencies of the War Department in the allowances for travel and cheerfully paid the expense of the instructors for extra visits. Notwithstanding every effort, many of the candidates for gunners could not be examined and the examination of a part of the officers who studied the basic course could not be completed.

The reports of examinations during the instruction year 1915–16 showed a qualification of 510 expert first-class gunners, 681 first-class gunners, and 369 second-class gunners, making a total of 1,560 in the entire Field Artillery.

The gunnery qualifications have been published in Circular No. 8, Militia Bureau, 1916, and the men whose names appear in the circular are entitled to the pay of their qualifications when in the service of the United States or when attending camps of instruction until the period for the next examination.

Unfortunately, the instruction of National Guard officers has not progressed as satisfactorily as that of the enlisted men, and the number who qualified for certificates of proficiency has been disappointing. While this has been due in a measure to the lack of sufficient inspector-instructors to conduct the correspondence courses

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and the examinations, the neglect of a large majority to qualify as gunners and the fact that a small per cent of the officers did qualify for certificates indicate that there was a general failure to make timely preparation for the examinations.

The names of officers who qualified under the course of instruction are published in Circular No. 17, Militia Bureau, 1916. All of those whose names appear in this circular have received certificates from the War Department, and they will be exempt from examinations for promotion in the subjects included in the course for a period of five years.

In order to afford some basis for comparison of efficiency of the batteries and the different headquarters details, a scale of ratings was published at the beginning of the instruction year. Values were fixed for (*a*) strength and length of service of enlisted men at the annual inspection under section 14 of the Militia law, (*b*) attendance at drills, (*c*) attendance at joint camps, (*d*) certificates of proficiency of officers and noncommissioned officers, (*e*) qualifications in the different classes of gunners, (*f*) proficiency in armory training, (*g*) rate of fire at service practice. On account of the mobilization of the National Guard and the conditions that prevented joint camps, it was not practicable to award ratings in subjects (*c*), (*f*), and (*g*). Ratings were given for the remainder of the subjects and the figures for all batteries and headquarters were published in Circular No. 16, Militia Bureau, 1916. It will be seen from this circular that great differences exist in the ratings of different organizations which apparently had equal opportunities. Newly organized batteries could not compete with those previously in existence and are not classified. The result of these comparisons should stimulate those that are backward to greater endeavor and impel those that have excelled to greater exertion in order to retain their leadership. While it is recognized that the system followed may not be entirely satisfactory, it has already produced valuable results.

FIELD TRAINING.

The schedule for armory instruction was conducted with a view to making all National Guard batteries efficient firing units at the joint camps in 1916. Experience has shown that a high degree of proficiency may be obtained at the armories in the mechanism of fire, in the firing battery, and in the employment of special details. All organizations should therefore enter upon their field training with such thorough preliminary instruction that the time may be devoted to mounted duties, tactical exercises, and target practice. To emphasize this requirement, the instruction program for the year prescribed that, in order to receive ammunition for service practice, at least 3 officers in the battery must have received certificates for the basic course and at least 20 enlisted men must be qualified gunners in the battery, including not less than 3 who had qualified in the subjects for headquarters, staffs, etc.

Early in the year 1916 a complete schedule for field training was announced, embracing camps of instruction for officers and noncommissioned officers, joint camps for all batteries, and a large class of officers and noncommissioned officers to attend the school of fire for Field Artillery.

When the time approached for establishing the camps, it was found that no regular troops were available to conduct them. An effort

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was made to hold the camps without regular troops, but the necessary appropriations could not be obtained. The States were then informed that the encampments could not take place. Unless regular troops can be spared to conduct camps, with horses and instructors, and unless adequate appropriations are made available in time to arrange for attendance of the National Guard batteries at the camps, it will be useless to attempt field training for Field Artillery.

INSPECTOR-INSTRUCTORS AND SERGEANT-INSTRUCTORS.

The success of National Guard training depends so largely upon an adequate and efficient corps of instructors that without them little can be accomplished. The officers and noncommissioned officers of the regular Field Artillery who have been detailed for this duty have maintained the high reputation already established for efficiency and leadership. They have been zealous in the performance of their arduous duties, and by their friendly sympathy with the militia and their mastery of the details of their profession they have held the confidence and the respect of the State officers and troops. As proof that their services have been appreciated by the States, more than half of the officers and eight of the noncommissioned officers were given State commissions when the National Guard was mobilized. Their number, however, has been so inadequate for the task that has been required of them that they not only have been unable to meet the demands, but in some cases the health of officers has been endangered by overexertion. The act of June 3, 1916, has provided extra officers and noncommissioned officers sufficient to furnish at least one inspector-instructor for each battalion and one sergeant-instructor for each battery. The work can not be accomplished with a less number of officers or noncommissioned officers.

The following extract from the report of the Inspector General of the Eastern Department, with reference to the Tenth Militia Field Artillery, is deemed worthy of special consideration in connection with the training of the Field Artillery of the National Guard:

In my opinion, which is based upon my observations in camps of seven different State troops, the citizen soldier, at the present state of training, will be of little real value on a hasty call into the Federal service unless there is a sufficient number of instructors from the Regular Army on duty with these troops, not only in times of peace at their armories, but also in their camps of mobilization. In most camps I have found that the Regular Army instructors had been taken off their regular duty, and had been made mustering officers. The instruction and training of the troops in such camps were practically at a standstill. The officers were attempting drills to some extent, but they were groping in the dark. Here it is different. The colonel, lieutenant colonel, majors, regimental and battalion staff officers, and one battery commander are officers or noncommissioned officers of the Regular Army, and the work accomplished here is in marked contrast to that accomplished in other camps. Instruction is progressive and methodical, and, above all, thorough. The accuracy of aiming and laying the pieces at artillery drill and the snappiness of the drills rival the work accomplished by Regular Army organizations. The days are so full from early morning until late at night for both officers and enlisted men that it seems as though they could not possibly accomplish more with increased effort, if such increase were possible. They are worked to the limit, but, I think, for a limited time at least, not to excess. After the days work is over, a final assembly of all commissioned officers is held and all mistakes, defects, and irregularities are taken up and discussed with a view to their prevention in the future. Some of these remarks do not appear, at first thought, to come under the caption "Remarks which may serve in appraising the real value of the citizen soldier, etc.," but I have made them here to show that the citizen soldier is of little value on a hasty call, unless they are provided with competent instructors, and I am becoming more and more convinced that the number of instructors which we must use from the Regular Army must be far greater than

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that which we have used in the past. The instruction of a regiment is not a one-man job. It is too great a task for efficiency, and if we expect efficiency from the National Guard organizations, I believe that one Regular Army officer detailed as instructor with each company or battery is not an extravagence. In the Regular service, we do not think of bringing and keeping a company up to the proper standard of efficiency with one officer, even when he has the advantage of trained noncommissioned officers as assistants. Much less can we expect to take untrained troops and bring them up to, and keep them at, a proper state of efficiency, so that they will be ready for service on a hasty call, with less than one commissioned officer and possibly one sergeant-instructor to a company or battery.

STUDENT ORGANIZATIONS.

In order to meet the wishes of certain colleges for the training of the students in field artillery and to assist the States in the development of this arm of the National Guard, the War Department, during the past few years, extended recognition to batteries in the following institutions: Yale University, University of Illinois, University of Minnesota, Purdue University, and the State Agricultural College of Colorado.

The student members of these organizations showed marked aptitude and manifested a lively interest in both the college and the field training.

While this method was the best that could be adopted under the then existing laws, it was fully recognized that the educational qualifications of college men fit them especially to become officers, and it has been evident that military instruction in colleges should be specialized, with the object of fitting graduates for commissions in the Regular Army, the National Guard, and the Volunteer forces of the United States. Many institutions that desired military training in the technical arms were unwilling to have the students organized as a part of the National Guard. State qualifications as to citizenship also operated to restrict the college membership of State forces. Furthermore, the routine of college life is incompatible with the general purposes of the National Guard, the most frequent function of which has been the performance of police duty in the enforcement of the laws. Business and professional men may undergo brief interruptions in their occupations incident to National Guard service without serious results, but students who are called for any appreciable time from their classes must suffer the loss of a years' progress in their education. Moreover, in order that a National Guard organization may be continually available, its membership must be permanently residents of some locality. During the vacation periods students become widely dispersed, and the National Guard organizations of which they constitute the membership virtually cease to exist. This condition prevailed at the time of the recent mobilization, and the assembly of student units was not only greatly delayed, but the expense involved for many men to return to their commands was prohibitive. Thus, student organizations are not equally available with other portions of the National Guard, and they do not form a homogeneous part of the State forces.

In recognition of the peculiar status of students, and with a view to having the country avail itself of the resources offered by the colleges, Congress embodied in the act of June 3, 1916, the wise provisions for establishing sections of the Reserve Officers' Training Corps in colleges and schools. The effect of this law is to provide a means for preparing young men to become commissioned officers with the

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least practicable interference with their educational endeavors. During their course of training in this corps they are not liable to the performance of any kind of military duty; at the same time they are being trained theoretically and practically for the performance of duties of officers, without any of the complications that arise in the organization of the National Guard units.

In order to comply with the intent of the law, as well as to give all colleges an equal opportunity to enjoy its benefits, the War College and the Militia Bureau concurred in a proposal prior to the mobilization of the National Guard, to replace National Guard units in colleges and schools by sections of the Reserve Officers' Training Corps, and thus transform them from an anomalous to a normal status. It was also proposed to withhold recognition in the future from National Guard units in schools. This principle was embodied in the regulations that have been approved for the government of the Reserve Officers' Training Corps. It would manifestly be unfair to institutions that have voluntarily assumed the burden of National Guard units to deny them the same privilege that is extended to those where no such endeavor has been made. Besides, as has been stated, National Guard organizations were recognized in colleges as a measure of expediency at a time when the laws provided no other means for technical military training. It is only logical, therefore, that this method should be discontinued when a change in the laws provides a method that will be to the interest of the Government, of the colleges, and of the students themselves. In having such organizations pass from the National Guard to the Reserve Officers' Training Corps, the country will not lose their services, but will avail itself of their usefulness in a much greater degree.

In accordance with the foregoing considerations, and in response to an unmistakable public sentiment, expressed by the natural demands of the college officials, the parents, and prominent citizens of the country, the War Department published on July 21, 1916, a policy which stated that student organizations should be mustered out of the service of the United States as soon as practicable after September 1, 1916, and that immediately after being mustered out, Federal recognition would be withdrawn from such organizations. Orders for student units to be mustered out were issued on September 6, 1916. It now remains to complete the policy by withdrawing Federal recognition from these organizations, and thus enabling the States to replace the student members by a different personnel.

COAST ARTILLERY.

Since the date of the last report (Oct. 1, 1915) the following new companies of Coast Artillery have been organized:

District of Columbia, one company.
South Carolina, five companies.
Virginia, two companies.
Maryland, one company.
Washington, four companies.
New York, two companies.
New Hampshire, one company.
Oregon, four companies.
Hawaii, two companies.

One company in New Hampshire was mustered out.

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The strength of the National Guard Coast Artillery since 1909, based upon the annual Federal inspections made under section 14 of the militia law, is shown in the following table:

Year.	Officers.	Enlisted men.	Companies.	Average enlisted strength per company.
1909	395	6,288	119	53
1910	457	6,864	122	56
1911	446	6,654	120	55
1912	472	7,228	125	58
1913	479	7,171	126	57
1914	450	7,150	123	58
1915	440	7,438	123	60
1916	450	8,090	127	64

There are now 147 companies and the total strength of the Coast Artillery, including those companies organized since the Federal inspection for 1916, is 545 officers and 11,010 enlisted men.

The National Guard Coast Artillery is being developed on the theory that in the event of war the various units will serve in fortifications not far removed from their home stations. The particular task set for the State forces is to man one-half of the gun and mortar batteries in the continental limits of the United States. This plan will require all of the seaboard States to maintain Coast Artillery, but up to the present time New Jersey, Delaware, Florida, Alabama, Louisiana, and Texas have failed to provide any companies whatever, and several other States do not maintain enough Coast Artillery to contribute effective service in the fortifications located along their coast lines.

The record of enlisted men who have qualified under War Department orders for various grades and ratings shows improvement from year to year, as is indicated below:

	1914	1915	1916
Master electricians	2	5	6
Engineers	6	8	11
Electrician sergeants, first-class	9	9	13
Electrician sergeants, second-class	3	8	14
Master gunners	3	5	12
Firemen	5	8	6
Gun commanders	40	63	137
Gun pointers	27	37	72
Plotters	35	62	121
Observers	48	69	157
First-class gunners	628	848	909
Second-class gunners	579	1,216	1,230

The following table shows the results of service target practice held during the last two years:

	1914		1915	
	Mean range.	Hits.	Mean range.	Hits.
	Yards.	*Per cent.*	*Yards.*	*Per cent.*
12-inch rifle	6,635	22.6	6,942	45.5
10-inch rifle	6,565	34.5	7,185	43.3
8-inch rifle	4,878	45.5	5,977	33.3
6 inch rifle	5,301	28.6	4,958	18.1
12-inch mortar	4,720	13.6	4,701	10.5

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The progress in target practice is more satisfactory than the tabulated results indicate, as the work during 1915 was performed with less assistance from the regular troops than in the preceding year. The service practice during the joint coast-defense exercises of 1916 was held at longer ranges than heretofore, but reports of the results are not available at this time.

The following table shows the officers and enlisted men of the National Guard Coast Artillery in attendance at joint coast-defense exercises during the past summer. Fourteen per cent of the officers and 47 per cent of the enlisted men had not attended a prior encampment. The number reported as not having attended previous coast-defense exercises includes 16 newly organized companies.

State.	Fort.	Date.	Organizations.	Total strength.[1]		Present in camp.[1]	
				Officers.	Enlisted men.	Officers.	Enlisted men.
Maine	Williams	Sept. 14–23	Band and 13 companies	51	843	46	756
New Hampshire	Constitution	Sept. 13–20	4 companies	16	267	16	238
Rhode Island	Greble	July 16–23	Band and 9 companies	38	628	38	583
	do	July 23–30	Band and 8 companies	38	586	38	523
Connecticut	H. G. Wright	June 22–July 1	Band and 13 companies	53	844	49	778
New York	do	July 2–16	Band and 12 companies	44	1,105	44	1,010
	do	July 16–30	Band and 10 companies	33	930	33	858
Massachusetts	Strong	Aug. 13–29	Band and headquarters.	15	44	10	43
	do	Aug. 13–22	4 companies	12	281	10	271
	Andrews	Aug. 17–26	do	12	290	9	249
	Warren	Aug. 20–29	do	12	293	10	287
Maryland	Howard	Aug. 17–31	1 company	3	65	3	50
District of Columbia	do	July 12–31	do	3	56	3	54
Virginia	Monroe	Aug. 4–15	do	3	69	3	61
North Carolina	Caswell	Aug. 7–19	6 companies	22	414	21	332
South Carolina	Moultrie	Aug. 20–28	5 companies	19	373	14	323
Georgia	Screven	May 20–28	4 companies	16	224	16	184
California	Winfield Scott	July 9–23	Band and 10 companies	33	628	31	473
	Rosecrans	July 7–23	2 companies	9	140	9	103
Oregon	Stevens	July 16–29	Band and 8 companies	32	606	31	451
Washington	Worden	Aug. 20–31	9 companies	36	639	35	536

[1] The columns showing "Total strength" and "Present in camp" include such officers and noncommissioned staff officers as are properly attached to coast-defense commands of the sizes indicated in each State. Most of the officers and a considerable number of enlisted men shown as absent during camp had been mustered into the United States service and were on recruiting duty in the States during the period of coast-defense exercises.

A uniform system of instruction, prescribed by War Department orders, has been in effect since 1911. The courses of study originally prescribed for officers were revised and made somewhat more extensive by General Orders, No. 2, War Department, 1916, and new schedules of instruction have been published for enlisted specialists, rated men, and gunners. It is the purpose of the Militia Bureau to make the examinations for the enlisted men of the Coast Artillery as thorough as those applied in like cases in the Regular service.

There has been a general improvement in efficiency in the Coast Artillery of most of the States, but the progress has been too slow. The small and irregular attendance at armory drills, the limited time allowed for summer exercises in the fortifications, and the constantly changing personnel in both officers and men continue to be serious obstacles to development. With a view to stimulating officers to make a better effort to qualify in the courses prescribed for their grades, attendance at the annual coast-defense exercises has been

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made conditional upon their passing certain examinations. In a similar manner companies were not allowed to fire at service target practice this year unless they had qualified according to certain standards of organization and efficiency. The effect of these restrictions has been very beneficial.

A considerable number of the older officers were separated from the active service during the past year. The average commissioned service of National Guard Coast Artillery officers reported at the last inspection is as follows:

	Years.		Years.
Colonels	21.3	Captains	7.3
Lieutenant colonels	19.5	First lieutenants	3.7
Majors	11.7	Second lieutenants	1.4

ENGINEERS.

The strength of the Engineer troops of Organized Militia, as shown by the armory inspections, January to March, 1916, was 70 officers and 1,165 enlisted men. Since that time two companies have been recognized, viz, one company at Honolulu, Hawaii, May 4, 1916 (strength, 4 officers and 65 enlisted men), and one company at Boulder, Colo., June 3, 1916 (strength, 3 officers and 54 enlisted men). The total strength at the end of the fiscal year, as shown by reports of Regular Army inspectors, was 77 officers and 1,284 enlisted men. This is a gain since last report of 8 officers and 16 enlisted men.

Since July 1, 1916, and due probably in a measure to the impetus given by the border situation, six companies have been organized and recognized up to September 12, 1916, viz, one company each at Norfolk, Va.; Wilmington, N. C.; Charlotte, N. C.; Port Arthur, Tex.; Dallas, Tex.; and Sacramento, Cal.; and one company, F, Fourth Pennsylvania Infantry, at Pottsville, Pa., was transferred to Engineers. The total number of companies has increased from 19 in 1915 to 29 in September, 1916.

The effectiveness of the paper strength was shown by the mobilization, where an average strength of those companies actually accepted in the United States service (in cases of those troops on the border, all but three companies, the strength is that actually present in camp July 31, 1916), was approximately 100. Ohio, Pennsylvania and Michigan had approximately the peace strength of 109 enlisted; New York, slightly less; Illinois, Iowa, and Company B Colorado, an average of about 80. The greatest difficulty was experienced in Company A, Engineers, of Colorado, composed almost exclusively of students from the Colorado School of Mines, which was not mustered in until August 5, 1916. This fact is a striking argument against maintaining as part of the first line (National Guard) organizations composed of students. Company B, Engineers, National Guard of Pennsylvania, did not lose a single man upon physical examination.

The act of June 3, 1916, changed the organization of the complement of Engineers for a division of the Regular Army from the battalion of four companies to a regiment of two battalions of three companies each. The change was effective on July 1, 1916, but to date of this report the National Guard Engineers had not effected the reorganization except in Ohio, where the four companies were constituted one battalion and one separate company.

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The equipping of the troops in accordance with provisions of Circular 16, D. M. A., 1915, has been accomplished except in certain items not procurable on account of the cutting off of foreign supply and inability of domestic manufacturers to produce the articles on short notice.

An additional sergeant of Engineers was detailed as sergeant-instructor of the Engineer troops in the States of Iowa, Illinois, and Michigan on December 15, 1915.

The usual drills and schools for officers, noncommissioned officers, and selected privates were held during the year. The correspondence course for the organizations outside of New York, Pennsylvania, and Ohio was unsatisfactory in results, due to the fact that participation was made voluntary. In Illinois only a fair adherence to the prescribed schedule of instruction was maintained.

State camps were held as mentioned in the last annual report for the Engineer Company in Oklahoma at Chandler, Okla., August 12 to 26, 1915, and for the Iowa Engineer Company at Iowa City, Iowa, August 16 to 25, 1915, and a provisional company in New York, July 18 to August 1, 1915.

Joint camps, mentioned in last annual report, were held at Belvoir Tract, Va., July 6 to August 28, 1915, all Engineer organizations east of the Mississippi participating. Plans were perfected for holding camp at the same place this year but the mobilization prevented.

The armory situation shows no change except in Philadelphia, where indications are that Company B Engineers will find accommodations by the fall of 1916 in the new armory constructed for the use of the Cavalry and Engineers.

SIGNAL CORPS.

During the past year the following changes have taken place in the Signal Corps troops. The Oklahoma company was refused recognition on account of inefficiency and was mustered out of the State service by the governor; two new type B (wire) companies have been organized, one in Kentucky and one in Hawaii.

The companies at Boston, Mass., and the one at Pittsburgh, Pa., have been increased to battalions. Company A, Ohio National Guard, from which recognition was withdrawn last year, was reinspected March 22, 1916, and recognition again extended to this organization and the State of Ohio credited with a battalion of Signal Troops.

Following the plan laid down last year to transfer A type companies to types B and E, the following changes have been made during the year:

California, from type A to type B.
Colorado, from type A to type B.
Connecticut, from type B to type E.
Missouri, from type A to type E.
Nebraska, from type A to type B.
New Jersey, from type A to type B.
Virginia, from type D to type E.

In order that the organization may be able to collect and transmit military information this branch of the service requires that its personnel in addition to being trained as soldiers shall have a large amount of technical education and training.

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Familiarity with the technical equipment and special apparatus can only be acquired by long application on the part of those who are required to use them.

As a result of conditions found to exist at the time of the annual armory inspections the following companies could not at that time be considered by the War Department as efficient for Federal purposes. They were therefore placed on probation until the next annual armory inspection, at which time they will be specially inspected with a view to determining their fitness to participate further in Federal appropriations:

Company A, Colorado.
Company A, Nebraska.
Field Company, Virginia.

The present organization of the various State Signal Troops is as follows:

4 FIELD BATTALIONS.

Massachusetts.	Ohio.
New York.	Pennsylvania.

17 FIELD COMPANIES.

	Type.		Type
Alabama	E	Kentucky	B
California	B	Michigan	A
Colorado	B	Missouri [1]	E
Connecticut	E	Nebraska	B
District of Columbia	B	New Hampshire	B
Hawaii	B	New Jersey [2]	B
Illinois	A	Virginia [3]	E
Indiana	E	Washington	A
Kansas	B		

AVIATION.

Realizing the importance of military aviation in war and to provide at least a nucleus of instructed aviators in the National Guard, this bureau recommended that the sum of $76,000 be appropriated to be made available for the purchase and maintenance of material and equipment necessary for the proper instruction in military aviation of such officers and enlisted men of the National Guard as may be authorized by the War Department to attend the United States Signal Corps Aviation School. The sum requested was appropriated by Congress August 29, 1916.

Applicants who successfully pass the required physical examination and who are detailed by the War Department for instruction, will receive the same pay and allowances, including those of travel to and from the school of instruction, as are received by officers and enlisted men of the Regular Army of the same grade who are detailed on like duty.

In the estimates asked for under the appropriation made by section 13 of the act of May 27, 1908 (now sec. 83, act of June 3, 1916), $1,000,000 was included in the total amount asked for ($4,576,000) in order to provide the equipment for eight aero companies.

In view of the call of June 18, 1916, all appropriations for the National Guard were materially reduced, as only those organizations not called into the service of the United States were to be provided

[1] Equipped as a type B company; change in equipment to be made as soon as practicable.
[2] Equipped as a type A company; change in equipment to be made as soon as practicable.
[3] Equipped as a type D company; change in equipment to be made as soon as practicable.

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for. The appropriation of $4,576,000 asked for was therefore reduced to $2,000,000, of which $400,000 is available for the purchase of equipment for issue to such aero units of the National Guard as may be recognized by the War Department.

During the past year two aero companies, the First and Second, have been organized in the State of New York. The First Company was mustered into the United States service July 13, 1916, under the call of the President of June 18, 1916. The report of the commanding officer of this organization, Capt. R. C. Bolling, based on opinions formed from experience since organization, giving special consideration to experience since mobilization, is as follows:

There is no difficulty in obtaining any desired number of men of education, character, and intelligence to take up military aviation. Men qualified by character, intelligence, and education to become officers and not merely aviators can be readily obtained. If men of this sort are desired, there is no need to take men of a different sort.

It is extremely difficult—and, in my opinion, will not generally prove possible—to obtain the right sort of mechanics as enlisted men in National Guard aviation units.

The expert mechanical work required in an aviation unit is very great in amount and most exacting in character. The utmost skill and care are required at all times and in every detail. This work must be done by mechanics regularly and constantly employed on the aeroplanes and motors. Mechanics who report at the aviation field only once or twice a week for a few hours according to the established rule of National Guard duty can not keep the aeroplanes in condition to be used, nor can such mechanics themselves be trained successfully. Furthermore, except in war times men do not enlist in the National Guard merely to work nights and Saturday afternoons and Sundays at their regular trade. For these reasons and from our experience I am convinced it will always be necessary to employ an adequate force of expert professional mechanics to maintain and repair the aeroplanes of any National Guard organizations.

It is very doubtful whether men will join National Guard aviation units unless they can be reasonably sure that sooner or later they will be given a chance to fly.

If they do join and find that they can not expect any chance to fly they will soon become so dissatisfied as to be a detriment to the organization. Nine months of experience with all sorts of applicants, several hundred in number, has convinced me of this. All these applicants, even the uneducated and unintelligent, expected sooner or later to get a chance to fly. It was the same with all classes. If any said they wished to come in even though they could not expect any chance to fly, a very slight cross-examination disclosed the fact that they really relied on getting a chance to fly, notwithstanding what they said.

Analysis of the situation will readily disclose the reasons for this attitude on the part of applicants for National Guard aviation units. They are:

(*a*) The work of those men in an aviation unit who do not fly has little military character. It does not offer the attraction of Cavalry, Artillery, or even Infantry drill and military exercises. It is largely mechanical work and fatigue.

(*b*) Most National Guard organizations are socially homogeneous, and no man willingly assumes a position of permanent inferiority to any others. While different men do somewhat different duties, all work together and their duties are similar. No men are assigned permanently to a lower class of work, but all who make good get their chances. In aviation units this is neither practicable nor desirable, because professional mechanics, chauffeurs, etc., do not make good material for aviators, who are expected also to have the education and intelligence of officers, and men of the education and intelligence expected of officers do not make good mechanics. In short, an aviation unit is a collection of specialists who ought to be kept continuously and permanently at their own classes of work. If all the men expect, or even hope sooner or later to fly, there is sure to be constant discontent.

(*c*) Men in civil life who are sufficiently interested in aviation to join a National Guard aviation unit are interested primarily in the flying and only secondarily in the mechanical and miscellaneous work attendant upon flying.

The officer of the aviation section, National Guard Signal Corps, Lieut. J. E. Carberry, in charge of the Signal Corps aviation station at Mineola, N. Y., reports as follows:

The First Aero Company was mustered into the Federal service July 13, 1916; it has been in active training since November, 1915, a period of nine months; it possesses four aeroplanes of a military type; it has had the services of highly paid aviation instructors and mechanics; the consistent devotion of its members has been wholly

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admirable, but as an aero company, in the military sense, it is nonexistent. The intention at the time of its creation was the training of a corps of officer aviators. In that it has succeeded, but it lacks, and under present conditions will continue to lack, the trained personnel that makes an aero company not only efficient, but even possible. No one will more candidly admit the truth of this statement than its own commanding officer.

The Second Aero Company was organized at Buffalo, N. Y., in the spring of the present year. It has had no opportunity to train its aviators, due to the fact (which must be emphasized most strongly) that it was raised in a city, which the largest aeroplane concern in this country, perhaps in the world, claims as its home, it does possess a certain number of trained aviation mechanics. Obviously, this advantage is most unusual, and, perhaps, would not obtain in any similar organization that might be mentioned, but, whatever his vocation, it is the desire of every man in the company that he be given an opportunity to demonstrate his qualifications as an aviator. The company was organized on this basis. Whether it was possible to organize it on any other is problematical. It may be argued that a new beginning on the basis of engaging a man for a certain clearly defined sphere of duty may be made, and at present an actual effort is being made in that direction.

The First Aero Company has established in New York City a recruiting office with the sole object of enlisting mechanics for the company. Although it has had the aid of the Aero Club of America, the Automobile Club of America, and the American Legion, and has sent out personal letters to many likely candidates, it so far has failed to secure even one enlistment.

Is it to be expected that other States will have greater success? Quite the reverse, considering the field of selection that is here open. It is not too much to predict that if in each State an aviation unit, or group of units, is raised, that the training of these units will be inadequate, except at a prohibitive cost, ununiform, due to the impossibility of Federal supervision, and inefficient, so far as preparation for war is concerned.

The efforts above described to establish and make efficient aero units of the National Guard were made under the most favorable circumstances.

The accounts of the two officers whose reports have been quoted—one of them an officer of the aviation section of the Regular Army and the other an officer of the National Guard, whose ability and professional attainments are well recognized in civil life—indicate plainly that no effort was spared by those who were charged with the task, and that the apparent failure was due to causes which could not be controlled.

These two officers practically agree in their conclusions, and these are based upon reasons which seem so convincing that the opinions expressed must be given great weight in deciding upon a policy to be followed in respect of instituting an aero service for the National Guard. Undoubtedly the spectacular part of the aviation service is that which attracts members of the National Guard. The drudgery connected with the aviation service, of which there is a great deal, and which is very essential to efficient maintenance, does not appeal to them. Relative values as between the work of flying and the other activities connected with the aviation service may be judged in some measure by the fact that of a personnel of 45 men in an aero company, only 6 are flyers. The rest never go up in the air at all, but are employed as mechanicians, artificers, or otherwise, all being necessary, and each man being a high-class specialist in his own line

It is conceded that the aero service is the most highly technical branch of an army. While a tolerable efficiency may be attained in the Infantry, Cavalry, Artillery, and other units of the National Guard, it is impossible to conceive of an efficient service in the maintenance and repair of the intricate mechanisms and elaborate appliances and matériel of aero units, through the intermittent or occasional service of voluntary workers.

While Congress has appropriated $400,000 for the purchase of equipment to be issued to such aero units as the War Department

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may recognize, the great cost of the equipment will make it necessary to impose conditions in respect of care and maintenance of matériel, which the State will find it difficult to meet. A final determination of the question must rest upon actual trial; but, so far, reason and experience both indicate an incompatibility between the aviation service of the Army and the National Guard service, which is beyond reconciliation, and which is entirely inconsistent with the idea that efficient National Guard aero units may be organized and maintained in time of peace.

It is still desirable to take advantage of the interest and enthusiasm which individual members of the National Guard have shown in military aviation, and this interest may well be utilized through provision for the attendance at the aviation schools of as many qualified students as may apply to attend.

In those States which are unable to maintain aero units, the graduated students of the aviation schools may find a useful activity by becoming incorporated in the Signal Corps Officers' Reserve Corps.

The pay and expenses incident to instruction at the schools, and the expansion of the aviation schools of the Army to meet an increase in the number of students, should be amply provided for, and, when this has been done, it is probably all that Congress should be asked to do toward the promotion of military aviation in the National Guard.

SANITARY TROOPS.

Since the date of last report the following new organizations have been completed up to June 30, 1916: Four ambulance companies, 3 field hospitals, and 14 detachments, making a total of 22 ambulance companies, 31 field hospitals, and 174 detachments. (See Table 13). Since June 30, 1916, there have been completed 4 ambulance compaines and 7 field hospitals, making a total of 8 ambulance companies and 10 field hospitals organized since last report. The following table shows the existing sanitary units and the number required for the 12 National Guard divisions:

Division.	States comprising divisional districts.	Organized.	Shortage.
Fifth.....	Maine, none, New Hampshire (1 F. H.), Vermont, none, Massachusetts (2 F. H. and 2 A. C.), Connecticut (1 F. H. and 1 A. C.), Rhode Island (1 A. C.).	4 F. H. 4 A. C.	None.
Sixth.....	New York (4 F. H. and 4 A. C.).....	4 F. H. 4 A. C.	None.
Seventh....	Pennsylvania (2 F. H. and 2 A. C.).....	2 F. H. 2 A. C.	2 F. H. 2 A. C.
Eighth.....	New Jersey (1 F. H. and 1 A. C.), Delaware, none, District o' Columbia (1 F. H.), Maryland (1 F. H. and 1 A. C.), Virginia (1 F. H.), West Virginia, none.	4 F. H. 2 A. C.	2 A. C.
Ninth.....	North Carolina (1 F. H. and 1 A. C.), South Carolina (1 F. H.), Georgia (1 F. H.), Florida (1 F. H.).	4 F. H. 1 A. C.	3 A. C.
Tenth.....	Kentucky (1 F. H. and 1 A. C.), Tennessee (1 F. H. and 1 A. C.), Alabama (1 F. H. and 1 A. C.), Mississippi, none.	3 F. H. 3 A. C.	1 F. H. 1 A. C.
Eleventh...	Ohio (3 F. H. and 2 A. C.), Michigan (1 F. H. and 2 A. C.).....	4 F. H. 4 A. C.	None.
Twelfth....	Illinois (2 F. H.), Indiana (1 F. H. and 2 A. C.).....	3 F. H. 2 A. C.	1 F. H. 2 A. C.
Thirteenth.	Iowa (1 F. H. and 1 A. C.), Wisconsin (1 F. H.), Minnesota, none, North Dakota, none, South Dakota, none.	2 F. H. 1 A. C.	2 F. H. 3 A. C.
Fourteenth.	Colorado (1 F. H.), Nebraska (1 F. H.), Missouri (1 F. H. and 1 A. C.), Kansas, none, Wyoming, none.	3 F. H. 1 A. C.	1 F. H. 3 A. C.
Fifteenth...	Louisiana (1 F. H.), Oklahoma (1 F. H. and 1 A. C.), Texas (1 F. H.), Arizona, none, New Mexico, none. Arkansas, none.	3 F. H. 1 A. C.	1 F. H. 3 A. C.
Sixteenth...	California (1 F. H. and 1 A. C.), Utah (1 F. H.), Washington, none, Oregon, none, Idaho, none, Nevada, none.	2 F. H. 1 A. C.	2 F. H 3 A. C.
	Total.....	38 F. H. 26 A. C.	10 F. H. 22 A. C.
	Total units.....	64	32

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While this increase in sanitary units is encouraging, it was largely due to mobilization of the National Guard, with prospects of active service. Newly organized sanitary units, under most favorable conditions, could not be made ready for efficient service in campaign within a less period than six months of intensive training after receiving their equipment and transportation. The formation of these orgainzations should not await the necessity created by a threatened conflict. They should be organized, equipped, and trained in time of peace. If this mobilization results in impressing upon the medical profession and the responsible State authorities the necessity of adequate sanitary units, properly trained and equipped in time of peace it will have done much toward the cause of preparedness.

The strength of the sanitary troops on June 30 was 884 officers and 4,436 enlisted men, a total gain of 884 during the year. (See Table 13.) The strength has been greatly augmented since mobilization by new units and detachments, also by increasing the personnel of organizations to war strength.

At the armory inspection in 1915, out of a total of 884 commissioned officers, 125 were not inspected. Of 4,436 enlisted men, 539 were absent from the inspection. (See Table 13.) While this is an improvement over last year, yet it is a large number concerning which there is no accurate information as to suitability and qualifications for military service.

In the majority of the States the condition of the sanitary troops in respect to organization, training, and equipment shows improvement over last year, although it is far from having reached the desired standard if immediate use of these organizations for campaign is considered. The degree of efficiency differs widely. In many States but a short period of preparation would be needed to make the sanitary troops ready for field service. In others, however, much time and labor would be required.

INSTRUCTION AND TRAINING.

In addition to the number of inspector-instructors reported last year, one other was authorized and assigned to the States comprising the Fifth Division, making a total of six medical officers of the Regular Army on this duty. All have shown commendable zeal in their efforts to increase interest among the sanitary troops and to improve their efficiency, but the number is entirely inadequate to accomplish the results desired. However, the results have been gratifying, and the numerous requests from States for additional officers, warrants the detailing of a sufficient number of medical officers of the Regular Army to provide for frequent visits of instruction to all sanitary detachments and units. The number of sergeant-instructors for sanitary troops was increased during the year by three at the request of this bureau, making a total of 15 on this important duty. The result of their work warrants the detailing of a sergeant of the medical department for each National Guard sanitary unit and sufficient additional ones to provide adequate instruction to the sanitary detachments. The value accruing to the Federal Government of detailing officers and noncommissioned officers with the National Guard from the viewpoint of increasing their efficiency, can not be overestimated. The money spent in

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this way will produce results that can not be secured by any other method.

CORRESPONDENCE COURSE.

In addition to the personal instruction, a correspondence course for medical officers of the National Guard was conducted by the inspector-instructors. Upon request, the War Department detailed sufficient medical officers from near-by posts, who, in addition to their post duties, conducted the correspondence course in those States for which no sanitary inspector-instructors were provided. While these officers performed the duty assigned to them in a satisfactory manner and the medical officers of the National Guard were able to get some theoretical instruction, yet the numerous changes of station of these officers seriously interfered with the work and made it impossible to secure the good results obtained by the inspector-instructors. The policy adopted last year of having all the questions prepared and sent out from this bureau has proved much more satisfactory than the previous method of having each inspector-instructor prepare the questions for his district. It is deemed advisable to continue this method.

More than 60 per cent of the medical officers successfully completed the prescribed courses. (See Table 12.) No reports were received from some States, partly due to the mobilization order and partly to the necessity of sending the medical officers conducting the course to the border for duty. The best showing was in States having medical officers detailed as inspector-instructors. Maj. Carl Philips, Medical Corps, National Guard of Kansas, was awarded a certificate of proficiency under the provisions of General Orders, No. 43, War Department, 1914. Having had more than 10 years' service in the Organized Militia, he was, upon request, permitted to take the final examination in the course, which he passed successfully.

FIELD INSTRUCTION.

It was planned to have a 10-day camp of instruction for medical officers and noncommissioned officers of the Medical Department at five conveniently located camps in the United States in June, to be followed by a 10-day joint camp for the sanitary units of the several States. A program had been arranged for a thorough practical course of instruction. All States except one had signified their intention of participating to the extent of the availability of funds for this purpose. Owing to the nonavailability of regular medical officers and sanitary units for instruction purposes, and the uncertainty of funds being made available by Congress, the proposed camps to be held at Tobyhanna, Pa., Anniston, Ala., and Fort Riley, Kans., had to be abandoned. The proposed camps scheduled for Sparta, Wis., and Monterey, Cal., were given up on account of the mobilization of the National Guard. These camps of instruction are of inestimable value for the training of sanitary troops, and unless the funds for this purpose are assured by March 1 of each year they can not be satisfactorily planned and consummated. In addition, adequate sanitary personnel and units of the regular Medical Corps must be available for instruction purposes, otherwise the funds for this purpose can not be economically and beneficially spent.

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ARMORIES.

With few exceptions, adequate armory facilities are afforded for the proper training and instruction of the sanitary troops during the indoor period. However, this can not be said in so far as it pertains to the proper storage of Federal property issued to the States for use of the sanitary troops. There appears to be a reluctance on the part of some States to provide these facilities. Many sanitary organizations are not provided with their proportional share of armory facilities nor with funds allotted by States for use of organizations. In some cases expensive locker facilities are provided for line troops and none for the sanitary troops occupying the same armory, and in several instances ample funds to the extent of providing luxuries are furnished line troops when the sanitary troops are not so provided. In nearly all States, caretakers and other persons are employed by the States to take care of the Federal property issued to line troops, when no such provision is provided for the sanitary troops. Such discrimination causes dissatisfaction, tends to discredit the necessity of sanitary troops, and does not promote their efficiency.

MATÉRIEL.

The sanitary organizations are, with few exceptions, equipped for the field. Much of the equipment is of obsolete model. Some of it is unserviceable by fair wear and tear, and there is some which is not in a serviceable condition due to the failure of the States to provide proper storage facilities to protect it from the elements. Unless States will take steps to provide adequate and proper storage facilities for the valuable medical property issued to it, the withdrawal of this property and Federal recognition is deemed advisable.

A large shortage of expendable articles is reported from several States, which in most cases have been expended during camp service. If the responsible medical officer would, upon return from camp, submit requisition to cover all articles expended in camp and necessary to complete the equipment of their organizations, this would not occur. In several instances the responsibility lies with the State supply officers because of their failure to forward duly rendered requisitions. In order that sanitary organizations may be always prepared for campaign, it is advisable that they be equipped with the latest pattern of matériel, which should be properly marked and stored for use when called into the Federal service The obsolete equipment could be used for camp service in time of peace.

PHYSICAL EXAMINATION AND TRAINING.

It is a matter of record that all States except two have adopted the physical standards prescribed for the Regular Army, and the majority of the States claim a rigid enforcement; but reports of inspectors indicate that great laxity has existed in the majority of the States in this respect. This has been confirmed by the recent mobilization. As the requirements of the regular service make it necessary that the physical condition of each and every man enlisted or reenlisted be passed upon by a medical officer, it would appear that the Medical Corps of the National Guard was responsible for the personnel found

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physically disqualified. This is no doubt true to a certain extent. It is not deemed advisable to expend money on the training and instruction of men who when needed for active service are found to be physically disqualified. Every man in the National Guard should be physically qualified for any duty devolving upon him. This can best be accomplished by instituting a thorough physical reexamination of each person as soon as practicable after enlistment and reenlistment in the National Guard by a medical officer of the regular service; also this should be done annually for the commissioned personnel. In this way the physically disqualified could be weeded out. Those having defects that are not disqualifying could have them waived. This would result in not more than 1 per cent of the personnel being found disqualified when called into the Federal service.

There are a large number of persons rejected for physical defects, such as poor physique, deficient chest expansion, and similar defects, who do not conform to the prescribed standard physical requirements, but who under proper physical training would in a short time meet these requirements and be able to endure the physical strain of campaign. If more time and attention were paid to the physical development and training of a soldier, a large number of the above type of men could in time of peace be enlisted in the National Guard and Army without decreasing its efficiency. Only a casual inspection is needed to impress upon anyone with military training that the National Guard personnel as a body is lacking in physical training; even those long in the service lack the physique which should result from proper military training.

TYPHOID PROPHYLAXIS.

There is very little change in the status of typhoid prophylaxis as reported last year. Some States have given considerable attention to the matter, while others have not. The annual inspection reports show that 2,481 officers and 24,866 enlisted men had received complete antityphoid prophylaxis out of a reported strength of 8,589 officers and 123,605 enlisted men, making a total of 27,347 protected against typhoid fever out of a total strength of 132,294. As compared with the report of last year showing 22,551 receiving complete antityphoid prophylaxis out of a total strength of 129,398, making 20 per cent during the past year, as against 17.4 per cent during the year previous, this increase is encouraging. However, too large a percentage are unprotected. It is believed the recent mobilization, which brought the National Guard under regulations prescribed for the Regular Army, requiring vaccination of all persons in the Federal service, will do much toward further popularizing these preventive measures. It is believed that the time has arrived to make them compulsory in the National Guard, thereby making it ready for a hasty call into the Federal service.

NONCOMMISSIONED OFFICERS.

The importance of intelligent, well-trained, competent noncommissioned officers for the medical department can not be overestimated. Without them the sanitary service of any organization will break down in campaign, and important records necessary to safeguard the Government and the interest of the soldier can not be secured. If to this

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is added a commissioned personnel with little or no knowledge of paper work required in the Federal service, we have a combination which will fall far short of efficiency.

With the exception of a few States, little or no efforts have been made to secure capable men for noncommissioned officers for the medical department, and little effort on the part of the commissioned personnel of the medical department to establish schools of instruction for noncommissioned officers to make them proficient in their duties. Examinations for appointments to the grades of sergeant first class, sergeant, and corporal have been of a perfunctory nature, and very often the noncommissioned officer is no more familiar with his duties than the private. Due to the lack of sufficient medical officers and noncommissioned officers of the Regular service detailed with the National Guard for instruction purposes this serious defect could not be corrected, and it is believed that one of the most serious defects found existing in the medical department of the National Guard called into the Federal service will be as above indicated. If it is of such import as to impress upon those concerned the necessity of devoting more attention in this direction, the mobilization will have accomplished something. Under the provisions of the act of June 3, 1916, the War Department has been given broader and greater power, as well as more adequate facilities, to correct this defect, and close supervision will be exercised along this line in the future.

ACT OF JUNE 3, 1916.

The act of June 3, 1916, contains much beneficial legislation which, when enforced, will greatly improve the efficiency of the medical department of the National Guard. It provides for uniform courses of armory and field instruction along lines prescribed for the Regular Army. It provides for an increased number of inspector and sergeant instructors. It provides for examination of medical officers and noncommissioned officers under Federal supervision. It will mean greater devotion to duty and acquisition of military knowledge on the part of the personnel. In addition, the act of August 29, 1916, provides for horses for the sanitary troops.

The progress made by the sanitary troops since the last report has been most satisfactory, and indicates a commendable spirit of the proper appreciation of the necessity for sanitary troops on the part of those concerned. The European war has been an important factor in demonstrating to the medical profession and others concerned that an adequate, well-organized, properly equipped, and trained sanitary personnel is a national asset in time of war; that sanitary organizations to be useful and fulfill their military functions must be organized, equipped, and trained in time of peace. The public not only expects, but demands, that the health and lives of its soldiers be properly safeguarded. Military efficiency demands that all preventable diseases be eliminated from the Army; that at least 65 to 85 per cent of its wounded be returned to the firing line.

MACHINE-GUN UNITS.

Under the provisions of the act of June 3, 1916, the status of the machine-gun units has been changed from provisional to permanent organizations.

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During the year the number of National Guard machine-gun units has been increased from 35 to 55. The armament of these organizations is as follows:

Equipped with 4 Benet-Mercier	42
Equipped with 4 Maxim	10
Equipped with 4 Lewis	
Total	55

The issue of other types of guns was made necessary by the shortage of guns and equipment of the standard type.

The allowance of ammunition for these units when they participate in firing exercises at joint camps or camps of instruction which are under the supervision and direction of an officer of the Regular Army has been increased to an amount not less than one-half the annual Regular Army allowance of ammunition for each machine gun.

On January 8, 1916, the War Department issued directions to department commanders to establish joint camps of instruction for machine-gun companies of the Organized Militia within their respective departments.

Machine-gun companies of the Organized Militia were to be ordered to these camps upon the recommendation of the adjutants general of the States and of the District of Columbia for a period of 15 days. A program of instruction was prepared based on an available instruction period of 96 hours.

The delays incident to the passage of the Army appropriation bill, and later the calling into the United States service of the National Guard, necessitated the abandonment of this proposed plan of instruction.

Actual firing practice at summer camps of instruction, in conjunction with troops of the Regular Army when practicable, will be made the chief feature in the scheme of instruction of machine-gun units of the National Guard, and proficiency in such practice will be made a condition of continued recognition. As packing and the management of pack animals is an important part of machine-gun service, each machine-gun unit should have a small nucleus of pack mules, not exceeding four, for instruction purposes when stabling facilities can be provided at or near the armories.

SMALL-ARMS TARGET PRACTICE AND COMPETITIONS.

Complete data of the results of target practice for the target (calendar) year 1915 are set forth in Table 14 of this report. Owing to the fact that this report goes to press before the close of the target year 1916, it is possible to submit tables showing the practice conducted during the target year 1915 only.

Attention has been called in previous annual reports to lack of progress in rifle firing. Although results of firing for the year 1915 show a slight improvement over the preceding year, the percentage of men qualifying with the rifle is still very unsatisfactory and is far from justifying the amount of the expenditures made for the promotion of rifle practice.

The following table shows the percentage of the Organized Militia which has qualified in rifle practice during the past nine years:

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Statement showing rifle practice of successive years.

Year.	Strength of organizations armed with rifle.	Total number qualifying as second-class men or better.	Percentage qualifying.
1907	97,642	46,523	47.6
1908	101,929	53,379	52.4
1909	108,851	56,896	52.3
1910	109,658	54,202	49.4
1911	111,829	48,150	43.1
1912	110,737	49,159	44.4
1913	111,140	42,599	38.1
1914	90,835	31,631	34.8
1915	108,561	41,701	38.4

The cost of target practice of the Organized Militia for the calendar year 1915 includes the following items, viz:

Acquiring and developing rifle ranges	$261.98
Shooting galleries	2,155.51
Civilian markers and scorers	45,183.69
Entrance fees	2,635.50
Prizes	5,603.22
Purchase rifle ranges	9,684.20
Caretakers, rifle ranges	29,179.36
Rent, rifle ranges	23,359.35
Construction and improvements (labor and material)	93,524.34
Ammunition	98,969.62
Miscellaneous	2,424.64
Total	312,981.41

From a comparison of this total with the number of men qualifying as second-class men or better during the calendar year 1915 it results that the cost to the United States, exclusive of the items of pay, transportation, and subsistence at rifle camps of instruction, is $7.50 per man. The items of pay, transportation, and subsistence at rifle camps of instruction are not separable from expenditures for other camps of instruction and can not, therefore, be included in the computation of the cost of rifle practice. If ascertainable, they would greatly increase the computed cost of qualification.

These figures make plain the necessity for an earnest endeavor to increase the returns on expenditures made for the promotion of rifle practice.

As stated in the last annual report, the degree of training expressed by the qualification of second-class men is a very low minimum, and any lower degree of skill has such a small value that it may be regarded as negligible. Indeed, failure to attain this qualification is evidence of such a hurried firing of the course or of firing without proper instruction that the actual result is more probably the engendering of individual faults which may represent a positive loss rather than an increase of skill. In this connection it may be remarked that the practice which exists in one State of firing the entire course of rifle practice in one day can not fail to be detrimental to any real progress in rifle practice.

The failure of the adjutants general of four States to comply with the provisions of section 12 of the militia law requiring them "to

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make returns to the Secretary of War, at such times and in such form as he shall from time to time prescribe, of the strength of the Organized Militia, and also make such reports as may from time to time be required by the Secretary of War" made it impossible to include the troops of those States in the tables showing the results of small-arms practice.

ARMORY INSTRUCTION.

The reports show a considerable improvement over those for the calendar year 1914 in respect to gallery practice, the number of men qualifying in gallery practice being nearly twice as great.

The remarks made in the last annual report as to the necessity of pursuing a progressive scheme of indoor instruction involving sighting, position, and aiming drills preliminary to gallery practice are here again emphasized.

RIFLE CAMPS OF INSTRUCTION.

These camps are sometimes held exclusively for the purpose of instruction in rifle practice and sometimes in conjunction with other camps for field instruction and maneuvers. The former are most beneficial in results. As a rule it may be said that rifle camps of instruction in conjunction with camps for field instruction and maneuvers are to be discouraged, as the two forms of instruction mutually interfere with each other. However, in States where but few ranges are available and the troops are distributed in many different stations, it has been necessary to take advantage of the occasions when the troops are assembled at the annual encampment for firing the prescribed course. The remedy for this condition lies in the provision of ranges for each company station.

In many States the limited time allotted to range practice (in one State but one day was allowed for the firing of all its troops through the entire Organized Militia course) made adequate instruction out of the question. A hurried firing of a large amount of ammunition in so short a period is worse than useless, for it is sure to engender in the untrained shot vices which, once formed, are very difficult to eradicate and which therefore decrease his value as a potential marksman below that of the man who has never fired a shot.

It may be laid down as a general rule that under efficient instruction the average recruit can not properly fire more than 40 rounds a day, and that therefore a minimum of three days should be allowed for the firing of the 97 rounds included in the Organized Militia course. Under a proper system of instruction, which will include a repetition of preliminary instruction and gallery practice for men found not properly prepared to fire service ammunition, the entire period of three days will be fully occupied in firing the prescribed number of rounds.

RANGE PRACTICE OF INDIVIDUALS.

Much of the outdoor instruction in small-arms firing consists in the range practice of individuals attending the nearest available range. Cost, time, and other factors considered, this method of conducting rifle practice is the most efficient means of securing results. It has therefore been the policy of the Militia Bureau to encourage the acquisition or lease of target ranges with a view to the ultimate pro-

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vision of a target range for each Infantry, Cavalry, and Engineer station.

PISTOL PRACTICE.

In 24 States no pistol practice is reported to have been held Paragraph 356f, Small-Arms Firing Manual, 1913, requires that "all officers and enlisted men armed with the pistol, except field officers, for whom the course is authorized but not prescribed," shall fire the prescribed course.

COMPETITIONS.

In the opinion of this bureau the true purposes which the national match should serve as a part of the scheme of national defense are as follows:

1. A school of musketry by means of which competitors could become qualified to act as instructors in target practice and thus disseminate the knowledge of that subject throughout the National Guard.

2. As a stimulus to members of National Guard organizations to perfect themselves in marksmanship in order that they may be able to win a place on the team.

The concrete evidence which should be demanded of the national matches that they are fulfilling these purposes is to be sought in the number of men qualified with the rifle, and as yet this evidence is lacking.

In order that the national match shall serve effectively the purpose of a school of musketry, it is first necessary that adequate range facilities be provided at the home stations of their organizations. For there is manifestly no purpose in training a corps of skilled instructors unless the ranges on which instruction can be given are supplied. Nevertheless, many States in which range facilities are almost totally lacking annually send teams to the place of the national match at considerable expense.

As a further condition to sending a team to the national match, a prescribed percentage—not less than 60 per cent—of the enlisted strength of the National Guard of a State shall have fired the standard course of target practice. Unless this principle is followed, the matches are not serving the purpose of stimulating the spirit of competition in the organizations, and furthermore they are absorbing funds which had better be devoted to the practice of organizations. A team was sent to the national match held during the calendar year 1915 by one State in which the total number of men firing the rifle during the target (calendar) year was 61, by another State in which the same total was 179, and in another 189. Numerous other cases might be cited in which conditions were nearly as unsatisfactory.

In general, the failure of the national matches to serve their legitimate function is due to the fact that they have been considered as an institution existing for its own sake, and uncoordinated with the general scheme of the target practice of the National Guard. Until the national matches are brought into relation with the general system of target practice, they will serve no purpose commensurate with the expenditure involved.

A statement of the organizations winning the national trophy for excellency in target practice is contained in Table 15 of this report.

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TARGET RANGES.

The policy of the Division of Militia Affairs has been to encourage the acquisition or lease in each State of—

(*a*) One well-equipped range of large target capacity at the points selected for the mobilization for war service of troops of the State. A range of this character will be necessary for the training of the large number of uninstructed men who will be incorporated in the ranks of the National Guard when mobilized for Federal service.

(*b*) A range of more limited extent and target capacity at the home station of each organization of Infantry, Cavalry, and Engineers, the size and equipment of these ranges depending upon the number of organizations which they serve. Ranges of this character are necessary in order that peace training in target practice may be conducted without the excessive expense incurred in transporting the troops to the site of ranges of the first class and in order that progressive instruction may be given throughout the target season without the haste which is necessary when troops are assembled for a few days' instruction at the larger ranges.

Satisfactory progress has been made in the provision of ranges of the first class. All but a few States are now supplied with ranges of this character.

In regard to ranges of the second class, conditions are less satisfactory, but steady progress toward the desired end is being made in many States. Some States, however, rely entirely on practice conducted when the troops are assembled at camps of instruction. As elsewhere remarked in this report, this procedure does not give satisfactory results.

The Army appropriation act for the fiscal year 1917 makes provision for carrying into effect the provisions of section 113, act of June 3, 1916, by appropriating the sum of $300,000 and authorizing the appointment of a director of civilian marksmanship. Section 113 of the act of June 3, 1916, contemplates the development under the direction of the Secretary of War of "such a comprehensive plan as will ultimately result in providing adequate facilities for rifle practice in all sections of the country." Under the provisions of this section, this plan should include all target ranges hereafter constructed from funds appropriated by Congress, and comprise rifle ranges provided for the use of the National Guard, as well as those constructed for the encouragement of civilian rifle practice. The section further provides that "all ranges so established and all ranges which may have already been constructed, in whole or in part, with funds provided by Congress shall be open for use by those in any branch of the military or naval service of the United States and by all able-bodied males capable of bearing arms."

These provisions contemplate a system of target ranges that will be available for all classes who are to receive training in rifle practice. This implies a high degree of coordination in the plans under which the ranges are located and the expenditure of the different appropriations are made. The two principal appropriations under which expenditures for the construction of rifle ranges will be made are "Rifle ranges and target practice, National Guard" and "Encouragement of rifle practice" under sections 67 and 113, respectively, act of June 3, 1916.

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It is believed that the proper coordination of these expenditures can only be insured by placing the expenditure of both appropriations under the control of one agency.

ARMORIES.

The armories in the various States differ widely in their cost, in their adaptability to instruction, and in the protection afforded against the elements, against fire, and against theft. Attention has been called where conditions are not satisfactory, and it is hoped that some States which have not been liberal in their appropriations will be more so in the future, as the enlisted man who subscribes to the National Guard oath is entitled not only to the services of properly trained officers, but to a reasonable degree of consideration on the part of the State, manifested by affording him a commodious and comfortable armory. Facilities for proper heating and for bathing—principally shower—will add largely to contentment.

FEDERAL FUNDS.

DISBURSEMENTS.

During the year the following amounts were disbursed from Federal appropriations for the support of the Organized Militia and the National Guard:

Under section 1661, Revised Statutes	$1,518,091.54
Under section 1661, Revised Statutes, for purchases	595,128.13
Under act of May 27, 1908	1,991,448.56
Under the appropriation "Care of horses and matériel, Field Artillery, Organized Militia, 1916"	108,853.15
Under special appropriation for procurement of Field Artillery equipment	1,875,870.72
Under special appropriation for equipment of Coast Artillery armories	29,828.92
Under the appropriation "Encampment and maneuvers, Organized Militia," for joint encampments, mobile army	113,424.46
Under the appropriation "Encampment and maneuvers, Organized Militia," for joint coast-defense exercises	148,762.04
Under appropriation for mileage for the Regular Army	35,718.16
For transportation of supplies	50,396.40
Total	6,467,522.08

NOTE.—The above amount does not include the expenses of noncommissioned officers on duty with the Organized Militia, nor the expenses connected with the sending of officers and enlisted men of the Organized Militia to the service schools.

Of this amount, $1,518,091.54 was disbursed under section 1661, Revised Statutes, and was used in payment of subsistence, transportation, and other expenses of the Organized Militia engaged in field instruction under regulations established by the Secretary of War. A certain percentage of this amount was used for the promotion of rifle practice, purchase of stores, etc. All disbursements from this allotment were made by the United States disbursing officers of the several States, the Territory of Hawaii, and the District of Columbia.

Under the same appropriation the sum of $595,128.13 was spent for supplies, etc., but this amount was not disbursed by the United States disbursing officers of the several States, the Territory of Hawaii, and the District of Columbia. Under section 13 of the militia law (act of May 27, 1908), the sum of $1,991,448.56 was applied to supplies and equipment issued to the Organized Militia on requisitions submitted by the governors of the several States, the

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Territory of Hawaii, and the commanding general of the District of Columbia Militia, and approved by the Secretary of War.

Under the appropriation "Encampment and maneuvers," there was spent $113,424.46 for the payment of transportation, pay, and subsistence for the members of the Organized Militia participating in joint encampments with the Regular Army. Under the same appropriation there was allotted for joint Coast Artillery defense exercises the sum of $148,762.04. These funds were disbursed by officers of the Quartermaster Corps of the Army.

Under the appropriation "Care of horses, matériel, Field Artillery, Organized Militia, 1916," the sum of $108,853.15 was expended. Of this amount, $61,791.97 was disbursed by the United States disbursing officers of the several States and the District of Columbia for the payment of mechanics and helpers authorized in the various batteries, and $47,061.18 for the procurement of forage and authorized veterinarian supplies for the animals used for Field Artillery purposes as authorized under the act of March 4, 1915.

During the past year accounts received from disbursing officers have, as a general rule, shown, as was reported for the fiscal year 1915, careful preparation. The suspensions by the Auditor for the War Department were in most cases for errors and technicalities. The accounts received were in the majority of cases rendered promptly after the end of the months for which due, and in very few cases can it be stated that the accounts were submitted after the period designated for their transmission had elapsed.

Regulations governing the appointment of property and disbursing officers of the United States required in each State under the provisions of the act of June 3, 1916, and the apportionment and disbursement of Federal funds appropriated for the National Guard under the provisions of this act, were published under date of July 14, 1916, and were in the hands of the authorities of the several States, the Territory of Hawaii, and the District of Columbia when funds appropriated under the provisions of the Army appropriation act for the fiscal year 1917 became available.

* * * * * * *

FEDERAL PROPERTY.

ACCOUNTABILITY.

Regulations governing the issue, survey, accountability, and care of United States property issued to the several States for the use of the National Guard thereof, rendered necessary in view of the provisions of the act of June 3, 1916, were published under date of July 12, 1916, for the information and guidance of those concerned.

The appointment of the property and disbursing officer required under the act of June 3, 1916, and the subsequent transfer of the accountability for the United States property from the governors of the several States and the commanding general of the National Guard of the District of Columbia to these officers has been delayed on account of the mobilization of the National Guard, but it is expected that this transfer will have been completed and the property and disbursing officers in the several States entered upon their new duties by the end of September, 1916. At the date of the submission of this report 41 States have taken the necessary steps

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toward the appointment of these officers, and their bonds have either been approved or are in course of accomplishment.

ISSUES.

The value of Government property issued to the Organized Militia during the fiscal year 1916 is shown by appropriations in the following table:

Under the act of May 27, 1908	$1,991,448.56
Under section 1661, Revised Statutes	595,128.13
Total concurrent appropriation	2,586,576.69
Under the special appropriation for the procurement of Field Artillery matériel	1,875,870.72
Equipment of Coast Artillery armories	29,828.92
Care of horses and matériel, Field Artillery	108,853.15
Grand total	4,601,129.48

The policy inaugurated by this office in 1914 of prescribing, prior to the annual inspections, the various articles that must be on hand for inspection in serviceable condition in order to require the equipment of the Organized Militia for field service in accordance with law has been carried out with very successful results. The only difficulty experienced has been that in the majority of cases the States preferred to wait until informed by the War Department of the results of the inspection before submitting requisitions to cover the deficiencies, the result being that, instead of being properly equipped at the time of the inspection, the articles required were not requisitioned for and received until some months later. This was forcibly brought to light as the result of the call of June 18, 1916, many requisitions being unfilled at that time which had to be canceled in order to prevent duplication of issues after muster in of the organizations. A statement (Table 17) is attached showing the condition of the several States in this respect, and the quantities of the several articles that were short of requirements on June 18, 1916.

Circular 10, Division of Militia Affairs, 1915, giving the requirements for the Federal inspections of 1916, was published May 27, 1915, in ample time for the States to obtain the equipment necessary before the inspections began on January 1, 1916, but as will be seen from the statement herewith (Table 17) but five States were equipped as required for the minimum authorized strength.

Circular 10, referred to in the preceding paragraph, stated that its publication was made on May 27, 1915, in order that those concerned may have timely notice of the War Department's intentions in the premises, and may have opportunity to obtain the equipment prescribed before the next inspection under section 14 of the militia law. The inspections referred to began January 1, 1916, and ended March 31, 1916.

The requirements set forth in this circular were such as to have the States provide for the necessary uniform clothing (except shoes, underwear, and cotton clothing) and individual equipment for the prescribed minimum strength of all organizations recognized by the War Department on January 1, 1916, and such organizational equipment as was necessary for active field service.

SHORTAGES.

A very energetic effort has been made during the year by a few States to clear up the existing shortages which were authorized by

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the Secretary of War December 27, 1912 (see pp. 59 to 66, report for 1915), to be carried on a separate list, the result being that the total amount of this shortage has been materially reduced. The Judge Advocate General of the Army having rendered an opinion that, in view of the provisions of section 87 of the act of June 3, 1916, and the fact that these shortages had been surveyed under the provisions of the act of June 22, 1906, the value thereof could not be charged against any Federal appropriations other than those made prior to the passage of the act of June 3, 1916, i. e., against the allotment to the States concerned under section 1661, Revised Statutes, there are no funds against which these shortages can now be charged. Accordingly, recommendation was made by this office to the Secretary of War, and approved by him, that legislation be had looking toward the relief of the States concerned from this shortage. Provision to this effect is included in the Army appropriation act for the fiscal year 1917 (act of Aug. 29, 1916), and the question finally and definitely settled.

The provision of section 87 of the act of June 3, 1916, carries out the recommendation made in the report for 1915, as to the survey, disposition, and method of charging for United States property lost, damaged, destroyed, or worn out by fair wear and tear in service, and it is confidently expected that in the future, as a result of the application of the new law, the losses for property will decrease through the better care that will be exercised by the States in its care and disposition.

There is shown below a statement as to the condition of the separate list accountability as it existed on June 30, 1916, from which it will be seen that the amount of this shortage has been reduced from $510,540.02 in 1915 to $383,852.57 in 1916.

	Shortages dropped from returns and separately accounted for pending final settlement.					Value of property found and taken upon returns and separate lists credited therewith between July 1, 1913, and July 1, 1916.
				1916		
	1913	1914	1915	Issuable.	Obsolete.	
Alabama	$84,229.65	$124,087.03	$120,877.48	$115,330.54	$4,919.67	$3,836.82
Arizona	.....	5,310.82	4,896.08	4,575.92	320.16	414.74
Arkansas	.....	115,459.26	115,459.26	3.86	.....	115,455.40
Colorado	.....	4,020.08	4,020.08	4,020.08	.....	.....
District of Columbia	17,278.47	17,278.47	11,789.82	11,497.31	292.51	5,488.65
Florida	12,907.34	12,907.34	10,182.32	10,132.48	46.70	2,728.16
Georgia	10,303.44	10,303.44	660.42	.....	.....	10,303.44
Illinois	5,851.09	5,851.09	.....	.....	.....	5,851.09
Louisiana	18,186.03	18,186.03	16,056.61	15,960.05	.....	2,225.98
Mississippi	.....	72,977.28	72,977.28	61,393.17	4,132.40	7,451.71
Missouri	2,130.65	2,130.65	2,130.65	877.83	1,215.16	37.66
Montana	8,267.53	8,316.01	8,308.72	6,886.83	1,421.89	7.29
New Jersey	2,833.02	2,833.02	2,833.02	2,551.27	281.75	.....
New Mexico	.....	257.88	257.88	70.12	187.76	.....
North Carolina	.....	44,093.04	16,845.98	8,751.78	7,392.11	27,949.15
Oklahoma	204.21	645.65	606.18	531.68	.....	113.97
South Carolina	.....	.....	32,271.05	18,228.20	12,533.53	1,509.32
South Dakota	131.23	6,107.04	6,107.04	5,824.35	282.69	.....
Tennessee	40,834.49	40,834.49	40,834.49	18,841.05	21,993.44	.....
Texas	.....	4,600.12	9,445.00	7,543.64	1,901.36	.....
Utah	.....	6,236.34	6,236.34	4,055.74	2,180.60	.....
Virginia	.....	28,373.47	27,044.97	22,619.83	4,355.76	1,397.88
Washington	.....	699.35	699.35	163.20	536.15	.....
Total	203,157.15	531,507.90	510,540.02	319,858.93	63,993.64	184,771.26

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SURVEYS.

The following table shows the value of property surveyed during the fiscal years 1915 and 1916:

	1915	1916	Increase.
Charged to the several States under section 1661 of the Revised Statutes	$70,450.19	$126,056.80	$55,606.61
Dropped from returns without charge	580,107.09	623,657.77	43,550.68
Total	650,557.29	749,714.57	99,157.29

From the above it will be seen that there was an increase in the value of property surveyed during the fiscal year 1916 of $99,157.29 over last year; of this amount $55,606.61 was charged to the allotments of the several States and represents the value of property lost, damaged, or destroyed through lack of reasonable care.

CLOTHING ALLOWANCE.

The following table shows the States and the amount of clothing allowance granted to each during the fiscal year 1916, under the provisions of section 13 of the amended militia law. This allowance was not granted until it was shown as a result of the Federal inspection of 1915 that the States were uniformed, armed, and equipped as required by Circular No. 15, D. M. A., 1914 (published in my report for 1915). The clothing allowance heretofore provided for by law has been abolished by the act of June 3, 1916, and all clothing in the future must be disposed of by survey proceedings.

Clothing allowance granted the several States for the fiscal year 1916.

Alabama	$21,791.67	New Hampshire	$11,025.00
Arizona	6,183.33	New Jersey	34,800.00
Arkansas	[1] 12,891.67	New Mexico	7,091.67
California	28,666.67	New York	130,058.33
Connecticut	[1] 23,100.00	North Carolina	23,408.33
Delaware	3,750.00	North Dakota	5,633.33
District of Columbia	15,391.67	Ohio	44,241.67
Florida	[1] 11,000.00	Oklahoma	8,541.67
Georgia	22,616.67	Oregon	13,516.67
Hawaii	7,541.67	Pennsylvania	85,550.00
Idaho	7,883.33	Rhode Island	[1] 10,966.67
Illinois	46,250.00	South Carolina	13,241.67
Indiana	17,308.33	South Dakota	8,125.00
Iowa	25,766.67	Tennessee	13,658.33
Kansas	15,100.00	Texas	17,425.00
Kentucky	19,408.33	Utah	[1] 4,716.67
Louisiana	8,700.00	Vermont	6,083.33
Maine	10,733.33	Virginia	22,525.00
Maryland	[1] 15,975.00	Washington	10,283.33
Massachusetts	47,108.33	West Virginia	13,391.67
Michigan	23,108.33	Wisconsin	25,791.67
Minnesota	27,333.33	Wyoming	4,983.33
Mississippi	9,391.67		
Missouri	32,266.67	Total	986,608.34
Nebraska	12,283.33		

As stated in the annual report for the year 1915 (p. 69), steps were taken during the year to sell the material of unserviceable woolen

[1] Not accepted by State.

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clothing forming a part of the soldiers' uniform after these articles had been dropped under the clothing allowance allotted the States. This measure was to replace the usual total destruction of condemned and unserviceable articles of clothing. In keeping with this plan, all such woolen articles of clothing were ordered turned into a depot of the Quartermaster Corps designated by the Quartermaster General, where they were macerated and sold. The sum realized from this sale amounted to $7,324.29. This practice can not be continued, as under the provisions of section 87 of the act of June 3, 1916, the proceeds of such sale must be deposited in the Treasury of the United States as a credit to the State, Territory, or the District of Columbia concerned, and become a part of and an addition to that portion of the State's allotment of Federal funds set aside for the purchase of similar supplies. In the future, therefore, all such articles will after survey be ordered sold under the supervision of the State authorities and the proceeds thereof credited to the allotment of the State.

TRANSPORTATION.

The table hereto attached (marked Table 11) shows the condition of transportation as it existed in the several States at the time of the call of June 18, 1916. The data in the table refer, however, only to those organizations that were recognized by the War Department and included in the call and not those organizations that were organized after the call and included therein.

THE NATIONAL MILITIA BOARD AND THE SUBSTITUTE THEREFOR.

The National Militia Board provided by section 20 of the militia law was assembled by the Secretary of War on October 29, 1915, for the purpose of consultation with reference to the status and needs of the Organized Militia with a view to formulating a plan of legislation to be submitted to Congress. The following members of the board were present: Maj. Gen. John F. O'Ryan, Brig. Gen. Walter A. Harris, Col. Wilder S. Metcalf, and Maj. Fred Llewellyn. Gen. E. A. Wedgwood, of Utah, was unable to attend. Gen. W. A. Harris, of Georgia, had been appointed a member of the board to succeed Maj. Harry S. Berry, of Tennessee, whose term had expired since the last meeting of the board.

The Secretary of War personally explained to the board the essential principle and the purposes of the legislation which he proposed to recommend for consideration by Congress and concluded by requesting the board to aid him by their practical knowledge and suggestions to make the principle operative.

The subsequent trend of legislation rendered any further meeting of the board unnecessary.

The National Militia Board was abolished by section 81 of the act of June 3, 1916, and the President was authorized to assign a colonel and a lieutenant colonel of the National Guard to duty in the Militia Bureau with the pay and allowances of their grades.

INSPECTOR-INSTRUCTORS.

Due to the border situation the number of inspector-instructors has been materially decreased, and because of the lack of officers it has been impracticable to replace those who have been relieved, so that

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at the present time there are a number of States without them. Their work during the past year has been very satisfactory. Generally, progress has been made, but in varying degrees in the different States. Some States have been quite liberal in furnishing and securing transportation for the inspector-instructors, so that they were able to visit frequently and give instruction to the organizations with which they were on duty. Other States have failed to furnish any facilities for such visits, and as a consequence many companies have been deprived of the actual services of the inspector-instructors. This condition will be remedied in large part in the future by the appropriations made under the terms of the act of June 3, 1916.

There has been cordial understanding between the State authorities and the inspector-instructors with but few exceptions. A tendency which should be corrected in the future has manifested itself in some instances of assuming that the inspector-instructor was responsible for the training of the regiment or other organization with which he was on duty. Responsibility and authority must always go together, and as the inspector-instructor can not be given the necessary authority unless commissioned in the regiment or other organization, it is plain that he can not be held responsible for the instruction and training, and his attitude heretofore has been and must continue to be that of an enthusiastic, willing, and encouraging helper, with the added duty of a friendly critic. The act of June 3, 1916, authorizes officers on duty with the National Guard to accept commissions in the same, and some States have already taken advantage of this privilege, but it is a matter that must originate with the State authorities and not with the Federal Government, though the latter should be liberal in allowing such commissions to be accepted, provided they are in offices where a Regular Army officer's experience and training can be put to the best use. They should not be allowed to accept subordinate positions, the command of small units, nor commissions in arms other than their own.

SERGEANT-INSTRUCTORS.

At the request of various State authorities 51 of the 203 sergeants on duty with the National Guard at the date of mobilization have been discharged from the Regular Army to enable them to accept commissions in the National Guard organizations called into the service of the United States by the President June 18, 1916.

Table 10 shows the number of sergeants of the different arms of the Regular Army who were on duty with the several States on June 30, 1916.

SCHOOL FOR THE SPECIAL TRAINING OF NONCOMMISSIONED OFFICERS OF THE REGULAR ARMY.

1. Under section 36 of the act of June 3, 1916, the Secretary of War is authorized to detail from the Infantry, Cavalry, Field Artillery, Corps of Engineers, Coast Artillery Corps, Medical Corps, and Signal Corps of the Regular Army not to exceed 1,000 sergeants of the Regular Army for duty with corresponding organizations of the National Guard for the purpose of assisting in the instruction of the personnel and care of property in the hands of the National Guard. Another section of the same law authorizes the President to detail for duty at institutions where one or more units of the Reserve Officers' Training Corps

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are maintained not exceeding 500 noncommissioned officers of the active list of the Army, who are to be additional in their respective grades to those otherwise authorized for the Army.

2. At the present time the demand for sergeants for duty with the National Guard is in excess of the number which the Secretary of War has authorized. With the passage of the law authorizing an increase in the number of sergeant-instructors the demand will have to be met to the extent that sergeants can be found who are considered capable for performing the duties. At the same time an additional demand will be made for noncommissioned officers to be authorized for institutions maintaining one or more units of the Reserve Officers' Training Corps. These also should be specially qualified as to personal character and fitness as instructors. Coincident with these demands the probable expansion of the Regular Army will create a demand for experienced and well-instructed noncommissioned officers which the Army itself can not at once meet.

3. While it is not expected that the demand for extra noncommissioned officers for duty with the National Guard and with institutions for learning will come up at once to the maximum number to be authorized under the law, it seems quite certain that the sources of supply and the methods of selection heretofore used will be inadequate to meet the demand for well-qualified noncommissioned officers likely to arise within the next 12 months. It would be manifestly unwise to detail for duty with the National Guard or at a school or college a noncommissioned officer who is unfit in any respect or whose fitness is doubtful. It may be stated that fitness is not only a question of moral character and professional knowledge, but of ability to impart instruction.

4. These considerations seem to justify the establishment of a school for the special training of a sufficient number of enlisted men of the Regular Army whose character and intelligence give promise of measuring up to the requirements imposed by service of the character named. It is obvious that only disciplined soldiers should be sent to such a school, and this consideration suggests a minimum service of two years as a basic condition for detail.

5. The influence of such a school should be very great in the tendency it would have to standardize ideas and methods of instruction for the citizen soldiery throughout the country. This consideration is of such importance that eventually the policy should be to detail for service of this sort only those who have certificates of graduation from such a school and who otherwise have been pronounced to be well qualified for the duty.

6. It is recommended, therefore, that measures be taken to establish a permanent service school for the training of noncommissioned officers of Infantry, Cavalry, and Field Artillery in accordance with the purposes which have been stated herewith. Matters relating to location of the school, duration of the course, condition of admission, etc., are details which may well be determined later.

* * * * * * *

Respectfully submitted.

G. W. McIver,
Colonel, Infantry,
Acting Chief of the Militia Bureau.

The Secretary of War.

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REPORT OF THE CHIEF OF THE BUREAU OF INSULAR AFFAIRS.

WAR DEPARTMENT,
BUREAU OF INSULAR AFFAIRS,
Washington, September 30, 1916.

SIR: I have the honor to submit the following report of the Bureau of Insular Affairs for the past year.

I. PHILIPPINE ISLANDS.

PERSONNEL APPOINTED BY THE PRESIDENT.

Hon. Clinton L. Riggs, secretary of commerce and police, resigned October 31, 1915, and was succeeded by Hon. Eugene E. Reed, who was appointed May 24, 1916.

Hon. Winfred T. Denison, secretary of the interior, resigned March 31, 1916.

Hon. Jaime C. de Veyra, member of the Philippine Commission, resigned to accept the position of executive secretary of the Philippine Islands on April 7, 1916.

The Philippine Commission is now composed as follows:

Governor General and President of the Commission:
FRANCIS BURTON HARRISON.
Vice Governor and Secretary of Public Instruction:
HENDERSON S. MARTIN.
Secretary of Finance and Justice:
VICTORINO MAPA.
Secretary of Commerce and Police:
EUGENE E. REED.
Secretary of the Interior:
(Vacancy.)
Members:
RAFAEL PALMA.
VICENTE ILUSTRE.
VICENTE SINGSON ENCARNACIÓN.
(Vacancy.)

There has been no change in the personnel of the Philippine Supreme Court during the past year.

Under the new Philippine bill, approved August 29, 1916, the President is vested with authority to appoint the auditor and deputy auditor of the Philippine Islands. Mr. Clifford H. French and Mr. Irving B. Dexter were reappointed as auditor and deputy auditor, respectively.

LEGISLATION.

The Philippine Islands were so fortunate at the last session of Congress as to obtain all the legislation which the department and the Philippine government requested. I attach to this report copies of the laws and parts of laws affecting only the Philippine Islands passed at this session of Congress.

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Congress ratified those acts of the Philippine Legislature either assuredly or possibly requiring such ratification. These were acts with reference to internal revenue. Congress continued the authority for the Filipino cadets at the Military Academy and granted similar authority for Filipino cadets at the Naval Academy.

For the first time since the American occupation of the Philippine Islands a vessel owned by citizens of the Philippine Islands and registered under the Philippine laws on December 6, 1915, arrived in a port of the United States. It was found that existing law did not treat such vessels as vessels of American registry, but required the payment of tonnage taxes and light dues. After consultation with the Department of Commerce it was recommended that such vessels should be given a status on arriving in American ports of American vessels, and there was included in the sundry civil bill a provision accomplishing this purpose and authorizing the refund of taxes paid in the case of the Philippine vessel that had arrived in an American port.

In addition to the foregoing minor matters, Congress passed the Philippine bill. The prior efforts to obtain this legislation were recited in the last annual report. At the meeting of Congress in December, 1915, Senator Hitchcock in the Senate, and Mr. Jones in the House of Representatives, promptly reintroduced the bill. It was taken up first in the Senate. The Senate committee gave extended hearings to persons interested in the legislation and to persons whom it desired to hear. The committees gave attentive and most patient hearings to the department on the bill, and the administrative features of the bill differ so slightly from what was urged by the department that it would be hypercritical to point out these slight differences. Indeed it would be folly to do so, in that the differences having been made after such careful consideration of what was urged may well be improvements on the departmental recommendations.

It is probable that any person, after a careful analysis of the bill, could select some point which, in his opinion, might be better otherwise. It would be very difficult to draw a bill of which this would not be true, and then it would be more difficult, if not impossible, to secure its enactment.

The Philippine bill is probably the best organic act which has ever been passed by Congress. It would be a reflection on the intelligence of the committees who had devoted so much time to the preparation of this bill, with all the lessons of experience available, if it were otherwise. It is doubtful if any similar piece of legislation has received more careful and thoughtful consideration.

On the preamble of the bill there was a wide divergence of opinion. There was, however, a general agreement that the body of the bill, which constitutes the administrative features, was admirably adapted to its purpose.

After a visit to the Philippine Islands in 1915, in a special report to the Secretary of War, I commented as follows on this bill:

> The Americans in the islands seemed almost unanimously to favor the administrative features of the Jones bill, but a majority seemed to be unfavorable to the preamble.
>
> Generally speaking, all who had studied the bill so as to understand fairly well its provisions seemed to favor the bill as it was, or favored it with a desire

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that the preamble should be omitted, and that appointments by the Governor General should be effective without the confirmation of the senate created by the bill.

It is doubtful if there are any persons in the Philippines who consider political questions who do not feel that there should be some legislation along the general lines of that proposed. Certainly I received no intimation that there were such during my visit to the islands.

The reason for this was quite evident to those who have followed conditions in the islands during the past 8 or 10 years. The opinion is practically unanimous that the form of government established in the islands, with an appointive commission as the upper house of the legislature, an elective assembly for the lower house, and with the commission, or upper house, given exclusive legislative authority over one-third of the territory of the archipelago, was no longer workable. The disagreements between the two houses had assumed an almost irreconcilable form. This was displayed in the failure for three years of the legislature to agree on a budget, the most important legislation committed to it. That the failure of the government in its legislative branch was not more apparent was due almost entirely to the personal affection of the Filipinos for Gov. Forbes, then Governor General. This feeling, which enabled Gov. Forbes to obtain the passage of many bills through the lower house of the legislature, was manifested at the time in many ways and I can testify that it remains, now that Gov. Forbes is no longer in the islands. Notwithstanding this feeling, however, the Filipino opinion is that the form of government had outlived its usefulness, and this opinion is shared by practically all Americans in the islands, even by those who advanced the idea that it should have been remedied by the abolition of the popular assembly.

It may at first glance appear that the form of government is now operating smoothly, since, under Governor General Harrison, the annual appropriation bills have been passed and other bills advocated by the Governor General have received attention and, in general, been enacted. This conclusion, however, would be erroneous. At present there is what might be called a *modus vivendi* simply because both the upper and lower houses of the legislature are looking forward to the passage of a new organic act to take the place of the present government act which has developed to that point where further progress is impracticable. How long this *modus vivendi* would continue it is impossible to say, but every consideration of prudence urges the passage of a bill which more clearly defines the power to be given to the expression of Filipino public opinion in matters of legislation and the extent to which such power is to be limited by the relation of the islands to the Unied States.

There is, however, another and an important respect in which the form of government of the islands is defective and which no local good will can correct.

To-day the revenues of the central government are almost wholly derived from customs and internal revenues. Legislation of Congress has withdrawn from the local government power effectually to legislate in respect of either of these taxes.

The local government may not borrow without the express authorization of Congress.

The great wealth of the local government is in the public lands and mines and the local government is without power to enact laws which would bring about the development of these lands and mines.

For 13 consecutive years the Philippine Commission urged amendment of the public-land laws without receiving the attention of Congress.

For five years the commission begged authority to borrow money for needed public works in vain.

Briefly, the local government has been and is without authority to regulate its income, to avail itself of its credit, or to utilize its wealth. As a consequence, a highly efficient government with immense potential wealth is continually checked in its progress.

Nothing has developed since to indicate that this comment was in any way inaccurate. In fact, the general feeling of satisfaction in the islands on the passage of the bill was far greater than was anticipated.

The great advantages of the bill from an administrative point of view are, first, the broad delegation by Congress of powers to the

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local government. Examining the annual reports of the Philippine Commission since its origin there will be found 124 formal recommendations to Congress for action that the commission felt necessary to progress in the islands. Had the commission the authority now given under the new bill to the Philippine government, of these 124 recommendations but 4 would have been necessary. The others might have been made effective by the Philippine government itself without reference to Congress. Had Congress heeded the recommendations, the advantage of the extensive grant of powers would not be so great; but it is important to note that many of the most serious recommendations of the commission received absolutely no consideration from Congress—this not due to a lack of confidence in the commission making the recommendations, but to the fact that Congress was occupied with other matters nearer home and could not give the time required to enact these recommendations, or the recommendations were of a nature that could not be passed on by Congress uninfluenced by widely different conditions at home which made the enactment of the recommendations based on Philippine conditions seemingly inadvisable.

The second great advantage of this act over the former organic act of the Philippine Islands and over the usual Territorial government acts is the great delegation of powers to the Executive authority. Where, for example, the legislature is given the unusual authority to legislate as to tariff, coinage, immigration, public lands, and it is desired that this authority be checked by an approval of the National Government this power of approval is given to the President, and while, of course, Congress reserves the right to legislate as to all Philippine matters and to annul any legislation of the Philippine government, it does not require the formal approval of any of these acts to be given by Congress.

These unusual powers granted to the President are accompanied by broad executive powers granted to the Governor General, in the preparation of the budget, in the appointment of the heads of the executive departments of the local government, in the broad veto powers, including the vetoing of items in appropriation bills. The Governor General is given general supervision and control of all of the departments and bureaus of the government in the Philippine Islands, and "all executive functions of the government must be directly under the Governor General or within one of the executive departments under the supervision and control of the Governor General." An act could not be more broadly drawn to prevent invasion of the executive functions of the government than is this organic act.

The legislature is given authority to legislate as to every matter concerning the Philippine Islands, restricted only as to those matters which are of national, as well as local, concern. Even as to these, in certain cases the legislature has authority to act subject to the approval of the President of the United States. The act is unusual, from an American point of view, in the broad grant of powers to the local government and in the very extensive powers that that government has within itself of creating the relation between the legislature and the executive. The Governor General may, by his power of appointment of senators and representatives to represent the non-

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Christian territory, appoint the heads of the executive departments members of the legislature, while, on the other hand, the legislature may provide, without reference to the use of these appointive positions for that purpose, that the heads of executive departments appointed by the Governor General may have seats in one or both houses of the legislature, or that members of the legislature may be appointed heads of executive departments.

LEGISLATION OF THE PHILIPPINE LEGISLATURE AND OF THE PHILIPPINE COMMISSION.

The most important acts passed by the local legislature during the year were those providing for the purchase of the Manila Railroad, for the establishment of the Philippine National Bank, and adopting the codification of the general statutes relating to the organization and administration of the Philippine government. Detailed information concerning this legislation will be found in the Report of the Philippine Commission for 1915, as well as concerning important acts passed by the local legislature on the following subjects: Primary schools for non-Christians, an emergency tax, immunization of cattle, reorganization of the Philippine Library, insurance of work animals, sugar centrals, tonnage dues on vessels, sponge fisheries, retirement of civil-service employees, coconut products board, an inheritance tax, regulation of the pearl fishing industry, a constabulary academy, the inspection of tobacco, conservatory of music, the reduction of infant mortality, and usury.

HEALTH.

The notable advances in the work of the Philippine health service during the year have been the establishment of municipal sanitary commissions, the beginning of a system of district nursing, and the forwarding of the reorganization of the service, particularly in the Provinces.

During the year epidemic outbreaks were handled by the service effectively. There were local outbreaks of cholera, but in each case it was possible to prevent a general epidemic.

Besides increasing the number of artesian wells in operation, work on a number of gravity water systems has been in progress. A number of Provinces were induced to provide laboratories to facilitate the diagnosis of epidemic diseases, and for the instruction of health officers in the routine bacteriological procedures necessary.

Two new hospitals were completed and put into operation during the year.

APPOINTMENTS.

During the past year 85 teachers were appointed from the United States to teach in the Philippine service, 19 graduates of military colleges were given commissions in the Philippine Constabulary, and a number of scientific and professional positions in the bureau of science, the bureau of health and the University of the Philippines were filled by the appointment of persons from the United States. The practice of appointing Americans to a number of clerical positions in the islands has now been practically discontinued, it being possible to fill such positions with qualified Filipinos.

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COMMERCE.

The Philippine import trade for the fiscal year ending December 31, 1915, amounted to $49,312,184, and was $723,531 more than that of the previous year. Largely increased purchases of foreign rice to supplement reduced local production, however, entered into this nominally larger total, leaving the general import trade other than rice nearly $3,000,000 less than that of 1914, and seven and a half millions less than that of 1913, which was unaffected by the trade disturbances of the war. Imports of iron and steel continued to show the effect of war conditions, with the total of $4,430,072, or about two and a half millions below that of the previous year, and only about half that of the high record of 1913. Cotton cloths presented a striking exception to the general trade movement, showing complete recovery from the depression of 1914, and giving a new high record of $8,641,130. American textiles dominated the trade more than ever before, amounting to 85 per cent of the total, and reference to United States export figures shows that the Philippines continue to be the largest market for the American manufacturer of cotton cloths, with shipments to the islands amounting to nearly 20 per cent of the foreign textile trade of the United States, the Philippine average of recent years.

The export total for 1915 was $53,813,004, or only about a million below the maximum record established in 1912, and the $5,000,000 increase over 1914 was chiefly shared between the copra and hemp industries, which made marked progress toward the resumption of normal production, with exports of copra showing an increase from 85,965 long tons to 136,895, and hemp from 114,548 to 139,767. Prices of these great staples, however, continued to decline. Sugar production was also satisfactory, and, though the export total of 207,679 long tons was 23,082 less than in 1914, stocks carried over at the end of the year were unusually heavy, while the smaller quantity marketed was at prices that realized more than the larger quantity of the previous year. High freights on distant shipments tended to offset the free-trade privilege, and only 81,532 long tons were exported to the United States. The distinctly American trade in coconut oil increased slightly, and this new export product continued to rank among the leading export staples, with further development to be expected upon the opening of a new and larger manufacturing plant.

Unfavorable conditions were again a feature in both the cigar and leaf-tobacco trade, shrinkage in these exports having been continuous for the past three years.

In the trade movement by countries imports from the United States materially increased, and constituted 53 per cent of the value of all imports, the increase being covered by cotton goods. Exports to the United States declined, due to the smaller sugar trade, and were 44 per cent of the export total. Imports from European countries generally declined, while the increased export trade followed the main channels of other years with a few minor war readjustments, such as shipments of copra to Italy and the United Kingdom, and the British sugar trade.

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IMPORTS.

Imports for the years 1906–1915, exclusive of gold and silver, were as follows:

Twelve months ending December—	From—		Total.
	United States.	Other countries.	
1906	$4,477,886	$21,925,882	$26,403,768
1907	5,067,538	25,386,272	30,453,810
1908	5,101,836	24,084,284	29,186,120
1909	6,445,331	24,639,088	31,084,419
1910	20,068,542	29,650,819	49,719,361
1911	19,156,987	28,867,420	48,024,407
1912	24,309,010	37,358,941	61,667,951
1913	26,676,261	26,636,525	53,312,786
1914	24,020,395	24,568,258	48,588,653
1915	26,381,069	22,931,115	49,312,184

EXPORTS.

Exports for the years 1906–1915, exclusive of gold and silver, were as follows:

Twelve months ending December—	To—		Total.
	United States.	Other countries.	
1906	$11,869,289	$20,773,603	$32,642,892
1907	10,329,387	22,768,480	33,097,867
1908	10,450,755	22,150,317	32,601,072
1909	14,726,513	20,197,824	34,924,337
1910	17,241,725	23,386,738	40,628,463
1911	19,827,030	24,760,261	44,587,291
1912	22,814,238	31,970,500	54,784,738
1913	16,434,018	31,338,938	47,772,956
1914	24,427,710	24,261,924	48,689,634
1915	23,653,211	30,159,793	53,813,004

COPRA EXPORTS.

Twelve months ending December—	Total.			United States.		
	Long tons.	Dollars.	Dollars per ton.	Long tons.	Dollars.	Dollars per ton.
1906	59,628	4,373,702	73	372	35,100	94
1907	57,696	4,784,151	83	2,076	197,558	95
1908	95,954	6,058,886	63	3,720	220,892	59
1909	107,310	7,672,865	72	5,850	422,178	72
1910	118,580	10,639,049	90	7,025	638,783	91
1911	139,901	13,019,562	93	14,969	1,378,315	92
1912	140,536	14,183,466	101	20,858	2,021,553	97
1913	80,920	9,545,724	118	9,879	1,199,083	121
1914	85,965	7,980,270	93	17,894	1,606,133	90
1915	136,895	11,111,555	81	20,882	1,760,046	84

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MANILA HEMP EXPORTS.

Twelve months ending December—	Total.			United States.		
	Long tons.	Dollars.	Dollars per ton.	Long tons.	Dollars.	Dollars per ton.
1906	102,439	19,612,632	191	55,863	11,155,550	200
1907	115,395	19,689,493	171	51,628	9,316,539	180
1908	129,313	16,501,956	128	60,344	7,797,926	129
1909	165,299	16,896,000	102	99,928	10,434,041	104
1910	160,595	16,475,311	103	74,335	8,397,310	113
1911	146,209	14,520,127	99	62,924	6,802,790	108
1912	172,311	22,075,671	128	74,805	10,779,137	144
1913	117,928	21,121,084	179	46,400	9,787,216	211
1914	114,547	19,194,815	168	49,348	9,619,376	195
1915	139,767	21,339,100	153	68,157	11,351,283	167

SUGAR EXPORTS.

Twelve months ending December—	Total.			United States.		
	Long tons.	Dollars.	Cents per pound.	Long tons.	Dollars.	Cents per pound.
1906	127,408	4,554,092	1.60	11,670	422,111	1.61
1907	125,896	4,195,671	1.49	10,815	403,851	1.67
1908	142,448	5,703,641	1.79	45,969	1,966,166	1.91
1909	127,284	5,608,287	1.97	52,234	2,649,604	2.26
1910	119,552	7,224,385	2.70	99,109	6,214,226	2.80
1911	205,392	11,040,673	2.40	184,345	10,067,103	2.44
1912	193,962	9,800,340	2.26	171,763	7,005,114	2.37
1913	154,848	7,032,889	2.03	30,232	1,564,036	2.31
1914	232,761	11,059,593	2.12	166,851	8,241,853	2.21
1915	207,679	11,310,215	2.43	81,532	5,141,580	2.82

LEAF TOBACCO EXPORTS.

Twelve months ending December—	Total.			United States.		
	Pounds.	Dollars.	Cents per pound.	Pounds.	Dollars.	Cents per pound.
1906	26,685,768	1,767,365	6.62	107,923	6,143	5.69
1907	23,587,247	1,576,874	6.69	.....	.....	.....
1908	24,927,663	1,708,756	6.85	.....	.....	.....
1909	20,909,597	1,532,086	7.33	12,172	1,669	13.71
1910	21,408,412	1,555,870	7.27	7,436	1,507	20.27
1911	26,935,055	1,810,639	6.72	5,611	744	13.26
1912	30,837,978	2,173,998	7.05	88,636	12,517	14.12
1913	28,088,987	1,854,776	6.60	9,888	2,259	22.85
1914	28,848,165	1,757,824	6.09	45,598	4,612	10.11
1915	24,136,034	1,527,106	6.33	87,384	10,096	11.55

CIGAR EXPORTS.

Twelve months ending December—	Total.			United States.		
	Thousand.	Dollars.	Dollars per M.	Thousand.	Dollars.	Dollars per M.
1906	108,635	1,004,007	9.24	1,690	29,670	17.56
1907	114,665	1,063,382	9.27	1,526	24,200	15.86
1908	115,881	1,059,328	9.14	1,182	18,376	15.55
1909	151,457	1,754,529	11.58	37,076	737,396	19.89
1910	184,407	2,759,661	14.97	61,526	1,560,799	25.37
1911	134,830	1,901,863	14.11	38,112	902,378	23.68
1912	190,842	3,092,064	16.20	90,000	1,958,321	21.76
1913	191,762	3,012,234	15.71	71,513	1,642,888	22.97
1914	154,753	2,315,159	14.96	56,205	1,200,126	21.35
1915	134,648	2,057,303	15.28	61,170	1,151,222	18.82

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ALL OTHER EXPORTS.

	Total.	United States.
	Dollars.	Dollars.
1906	1,331,094	220,715
1907	1,788,296	387,239
1908	1,568,505	447,395
1909	1,460,570	481,625
1910	1,974,187	429,100
1911	2,294,427	675,670
1912	3,459,199	1,037,596
1913	5,206,249	2,238,536
1914	6,381,973	3,755,610
1915	6,467,725	4,238,984

BONDED INDEBTEDNESS.

The bonded indebtedness of the Philippine government, including the bonded indebtedness of the cities of Manila and Cebu, has not changed since the last report. It is as follows:

	Amount.	Redeemable.	Due.
Land purchase bonds, 4 per cent	$7,000,000	1914	1934
Public works and improvement bonds, 4 per cent	2,500,000	1915	1935
Do	1,000,000	1916	1936
Do	1,500,000	1919	1939
City of Manila sewer and waterworks bonds, 4 per cent	1,000,000	1915	1935
Do	2,000,000	1917	1937
Do	1,000,000	1918	1938
City of Cebu sewer and waterworks bonds, 4 per cent	125,000	1921	1941
Total	16,125,000		

Ample sinking funds have been provided by law for the retirement of the above-mentioned bonds at or before maturity. The status of these sinking funds is satisfactory.

RAILWAY BONDS.

On December 31, 1915, bonds of railroads guaranteed as to interest by the Philippine Government were outstanding as follows:

Manila Railroad Co	$10,575,000
Philippine Railway Co	8,551,000

GOLD STANDARD FUND.

Excess increments to the gold-standard fund to the amount of $425,594.69 were transferred to the general fund of the insular treasury during the year under consideration, making the total transfers on this account to December 31, 1915, $3,284,573.90. On that date the gold-standard fund consisted of $9,259,744.56, of which $4,971,074 was invested in loans to Provinces, municipalities, and the Manila Railroad Co., the remainder being in cash deposited with banks at interest, and with proper security, or held in the insular treasury, with the exception of $179,080.54 represented by accounts receivable.

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SILVER COINAGE.

During the year ₱122,000 in Philippine silver coin was shipped to San Francisco mint for recoinage under the act of Congress approved June 23, 1906, making the total of such shipments to December 31, 1915, ₱30,482,534. There was also shipped during the year Pfs. 62,772.80 in Spanish-Filipino coin.

New coin was shipped from the San Francisco mint to Manila during the year to the amount of ₱306,856.20, making the total shipments of silver coin of the present standard to December 31, 1915, and the minor coinage on hand that date as follows:

Pesos	₱43,085,312.00
50 centavos	2,719,401.50
20 centavos	2,109,808.60
10 centavos	1,510,039.20
5 centavos	499,250.00
1 centavo	646,076.37
½ centavo	52,042.00
Total	50,621,929.67

PAPER CURRENCY.

During the year ended December 31, 1915, Philippine silver certificates were prepared at the Bureau of Engraving and Printing of the United States Treasury Department and shipped to the islands for circulation as follows:

2-peso notes	₱2,200,000
5-peso notes	1,500,000
10-peso notes	500,000
20-peso notes	1,000,000
Total	5,200,000

DEPOSITARIES IN THE UNITED STATES.

There have been no changes in the banks designated as depositaries for funds of the government of the Philippine Islands since the last report. The deposits of the treasurer of the Philippine Islands with depositaries in the United States since June 30, 1903, are set forth in the following table:

June 30, 1903	$3,184,261.40
June 30, 1904	11,648,638.23
June 30, 1905	11,984,429.87
June 30, 1906	6,856,559.32
June 30, 1907	13,061,095.86
June 30, 1908	8,034,602.94
June 30, 1909	10,376,313.40
June 30, 1910	14,421,191.30
June 30, 1911	12,908,977.19
June 30, 1912	11,446,373.34
June 30, 1913	9,893,019.37
Dec. 31, 1913	8,319,348.14
Dec. 31, 1914	5,538,668.65
Dec. 31, 1915	4,730,520.23

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INSULAR RECEIPTS AND DISBURSEMENTS.

The following is a statement of insular receipts and disbursements of the Philippine Islands, exclusive of all items of a refundable character, expressed in United States currency, for the six months ending December 31, 1913, and the fiscal years ending December 31, 1914 and 1915:

	Six months ending Dec. 31, 1913.	Fiscal year ending Dec. 31, 1914.	Fiscal year ending Dec. 31, 1915.
CREDITS.			
Balance from prior year	$7,115,110.11	$4,982,994.90	$4,259,027.92
Revenues:			
Customs	3,166,754.55	5,422,481.79	6,072,544.58
Internal	2,240,491.06	4,881,904.40	6,926,367.67
Miscellaneous	91,616.35	245,665.64	481,436.40
Surplus gold-standard fund	285,077.18	430,619.19	425,594.69
Total revenue	5,783,939.14	10,980,671.02	13,905,943.34
Transfer from sinking funds		791,376.29	370,020.41
Supplies brought into account	2,042.39	34,612.64	64,451.07
Total credits	12,901,091.64	16,789,654.85	18,599,442.74
DEBITS.			
Expenditures:			
Bureaus and offices	5,361,823.46	8,612,162.79	8,229,174.51
Miscellaneous	195,553.62	507,909.09	468,736.14
Fixed charges	383,567.16	829,550.71	856,188.49
Aid to Provinces and municipalities	414,961.36	1,050,375.21	1,487,712.08
Public works	1,562,191.14	1,530,629.13	2,440,573.14
Total expenditures	7,918,096.74	12,530,626.93	13,482,384.36
Surplus:			
Cash	1,699,760.53	308,491.40	1,249,688.02
Supplies	2,787,760.94	2,603,216.27	2,762,054.70
Other	495,473.43	1,347,290.25	1,105,315.66
Total debits	12,901,091.64	16,789,654.85	18,599,442.74

II. PORTO RICO.

CHANGES IN PERSONNEL.

Allan H. Richardson, treasurer of Porto Rico, resigned November 3, 1915. His successor has not been selected.

José C. Barbosa and Manuel Camuñas were selected to succeed themselves as members of the executive council.

LEGISLATION.

The act of April 12, 1900, providing a temporary government for Porto Rico has been in effect longer without serious amendment than those who prepared it had hoped. It was indeed a far better act than could have been expected, prepared, as it was, with limited information of the country to which it was to be applied and in the haste which must necessarily be given to such legislation by so busy a body as Congress.

The first serious criticism of the act arose from the fact that it had not made the people of Porto Rico citizens of the United States, but had made them citizens of Porto Rico owing allegiance to the United States. This anomalous position imposed no real hardship on the people of Porto Rico, who, as a matter of fact, were given all the

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material benefits of American citizenship, but it set them apart in a way which left a doubt as to what was to be the ultimate political disposition of the island.

The resulting feeling of irritation was increased because the Porto Rican people had either forgotten or never known that the creation of this status of Porto Rican citizenship for them rather than American citizenship had been conceived entirely in a feeling of kindness.

At the time of the passage, in 1900, of the first organic act of Porto Rico the island was suffering from an almost unprecedented destructive hurricane. The island when taken over by the United States was so much poorer than any territory with which the United States had previously had experience that few of our people can be brought to a realization of it, and most Porto Ricans seem to have forgotten it. The appreciation of this condition by Congress resulted in the giving to Porto Rico something which had never been given to territory under the United States—that is, its own internal revenue and its own customs receipts. A fundamental part of the first organic act was the granting of these revenues to Porto Rico. It was thought that if Porto Rico should be made a Territory of the United States these revenues could not be granted to it without a serious risk of such grant being held to be unconstitutional, and care was taken to avoid the possibility of Porto Rico being held to be a Territory.

It was thought possible that if the people of Porto Rico were made, as the original bill reported to the Senate made them, citizens of the United States, Porto Rico might be held to be an incorporated Territory of the United States and that it would be impossible then to give to it the revenues which it was felt were necessary to the maintenance of an efficient government in Porto Rico. It was this condition which brought about the Porto Rican citizenship as distinguished from American citizenship, the change in the bill being made on the floor of the Senate.

Meantime the Supreme Court in the Insular Cases having made clear the status of Porto Rico and by inference what might be done without making such territory of the United States an incorporated Territory, Gov. Beekman Winthrop in his annual report for 1905 recommended that United States citizenship be conferred upon Porto Ricans. This was renewed in his report for the succeeding year, and President Roosevelt, in a special message to Congress of December 11, 1906, in which he referred to his then recent visit to the island of Porto Rico, expressed the earnest hope that full American citizenship should be conferred upon the people of Porto Rico.

Since that time practically every governor of the island and every President of the United States has recommended this action.

The fact that the Porto Ricans were not American citizens and that Porto Rico has been regarded by all administrations as being permanently a part of the United States has become increasingly an humiliation to some Porto Ricans and a basis for agitation on the part of others. Since 1910, or, in fact, since Porto Rico was placed under the jurisdiction of the War Department, there has been an effort, consistently backed by the Presidents and by the department to obtain for Porto Rico a new organic act which would make the Porto Ricans citizens of the United States and would give to them a practically autonomous government.

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The department contemplated, in recommending an act to replace the present act "temporarily to provide revenues and a civil government for Porto Rico," that it should embody the following general principles:

First. The people of Porto Rico should be made citizens of the United States to make clear that Porto Rico is to remain permanently connected with the United States.

Second. The present fiscal system by which Porto Rico received its own internal revenue and customs receipts should be continued.

Third. It should be clear that Porto Rico was not made by the act an incorporated Territory of the United States, and therefore it should be made plain that the Constitution and general statutory laws of the United States were not extended to Porto Rico and that there was no direct or implied promise of statehood.

Fourth. The government given Porto Rico should be as autonomous as consistent with fair efficiency and of a form permitting further extension of powers without radical change in the form of government.

Fifth. The form of government was to be a development from the experience of Porto Rico, and no sacrifice of efficiency was to be made to adapt its form to our theories.

Bills varying in form, but designed, in general, to accomplish the foregoing results, have been considered at each session of Congress since 1910. At the opening of the session of Congress just closed bills were introduced in the House by Mr. Jones, the chairman of the Committee on Insular Affairs, and in the Senate by Senator Shafroth, chairman of the Committee on Pacific Islands and Porto Rico. On May 23, 1916, the bill passed the House, and it was reported with amendments to the Senate by Senator Shafroth on July 3. It was impossible to secure the time necessary for the passage of the bill through the Senate at the last session, but in order that there should be a minimum loss of effort if, as is hoped, the bill should pass at the coming short session of Congress, there was included in the deficiency appropriation bill a provision postponing the general election to be held in Porto Rico on the first Tuesday after the first Monday in November, 1916, in order that if the bill should pass, the date of this election should be fixed in the bill, and if the bill should fail, the President could designate some convenient date in future for the postponed election.

Many people in Porto Rico have for a number of years been interested in the formation of national guard organizations, but it was found that under existing law there was no authority to extend the benefits extended by the Federal Government to National Guard organized in the several States and Territories to such bodies in Porto Rico. This has rendered impossible in the past the creation of national guard organizations in Porto Rico. To obviate this in the future, there was included in the national defense bill the following provision:

* * * *Provided further*, That the word Territory as used in this act and in all laws relating to the land militia and National Guard shall include and apply to * * * Porto Rico.

This places Porto Rico in the same status with reference to militia organizations as the States and Territories of the Union.

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COMMERCE.

The import trade of Porto Rico for the fiscal year ended June 30, 1916, amounted to $38,951,156, and an increase of $5,066,860 over the previous year points to complete recovery from the depression of the early war period. The improvement was, however, confined almost wholly to imports from the United States, the reduced values of other countries as a whole in 1915 showing but slight increase, and amounting to only 8 per cent of the total. In the larger American trade for the year there were important increases in iron and steel, rice, fertilizers, and automobiles, while cotton cloths were a conspicuous exception with values much below normal.

Exports reached the unprecedented value of $66,731,573, or more than 30 per cent over all previous records, due to the largest shipments of sugar in the history of the island marketed at war prices. Sugar exports continued to be almost wholly to the United States and amounted to 379,424 long tons, valued at $45,809,445, an increase in quantity of 116,500 tons and in value of $18,530,691 over the preceding year. Conditions in the coffee trade were less favorable, and though the export price improved over the low figure of 1915, the quantity was the smallest since 1909 and the value of $5,049,283 fell over $2,000,000 below that of 1915. The reduced trade continued chiefly with foreign countries, shipments to the United States, after having assumed some importance in 1915, declining again to nominal proportions. Exports of both cigars and leaf tobacco were also smaller, as well as fruits and nuts, but considerably larger values among the minor exports were credited to molasses and to straw manufactures.

IMPORTS.

Imports for the years 1907–1916, exclusive of gold and silver, were as follows:

Twelve months ending June—	From—		Total.
	United States.	Foreign countries.	
1907	$25,686,285	$3,580,887	$29,267,172
1908	22,677,376	3,148,289	25,825,665
1909	23,618,545	2,925,781	26,544,326
1910	27,097,654	3,537,201	30,634,855
1911	34,671,958	4,115,039	38,786,997
1912	38,470,963	4,501,928	42,972,891
1913	33,155,005	3,745,057	36,900,062
1914	32,568,368	3,838,419	36,406,787
1915	30,929,831	2,954,465	33,884,296
1916	35,892,515	3,058,641	38,951,156

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EXPORTS.

Exports for the years 1907–1916, exclusive of gold and silver, were as follows:

Twelve months ending June—	To—		Total.
	United States.	Foreign countries.	
1907	$22,070,133	$4,926,167	$26,996,300
1908	25,891,281	4,753,209	30,644,490
1909	26,394,312	3,996,913	30,391,225
1910	32,095,645	5,864,574	37,960,219
1911	34,765,409	5,152,958	39,918,367
1912	42,873,401	6,832,012	49,705,413
1913	40,538,623	8,564,942	49,103,565
1914	34,423,180	8,679,582	43,102,762
1915	42,311,920	7,044,987	49,356,907
1916	60,952,768	5,778,805	66,731,573

SUGAR EXPORTS.

Twelve months ending June—	Total.			United States.		
	Pounds.	Dollars.	Cents per pound.	Pounds.	Dollars.	Cents per pound.
1907	408,157,696	14,770,682	3.62	408,149,992	14,770,354	3.62
1908	469,213,567	18,690,504	3.98	469,205,082	18,690,149	3.98
1909	488,512,440	18,432,446	3.77	488,452,733	18,430,750	3.77
1910	569,045,148	23,545,922	4.14	569,039,881	23,545,665	4.14
1911	645,838,403	24,479,346	3.79	645,834,403	24,479,159	3.79
1912	734,289,872	31,544,063	4.30	734,289,872	31,544,063	4.30
1913	765,400,310	26,619,158	3.48	765,400,310	26,619,158	3.48
1914	641,266,527	20,240,335	3.16	641,252,527	20,239,831	3.16
1915	588,950,493	27,278,754	4.63	588,922,493	27,277,839	4.63
1916	849,910,000	45,809,445	5.39	849,763,491	45,799,299	5.39

COFFEE EXPORTS.

Twelve months ending June—	Total.			United States.		
	Pounds.	Dollars.	Cents per pound.	Pounds.	Dollars.	Cents per Pound.
1907	38,756,750	4,693,004	12.11	177,476	23,031	12.98
1908	35,256,489	4,304,609	12.21	129,322	16,157	12.49
1909	28,489,236	3,715,744	13.04	126,684	17,241	13.61
1910	45,209,792	5,669,602	12.54	163,350	21,876	13.39
1911	33,937,021	4,992,779	14.71	248,941	35,726	14.35
1912	40,146,365	6,754,913	16.83	414,656	71,104	17.15
1913	49,774,197	8,511,316	17.10	773,626	132,970	17.19
1914	50,211,947	8,193,544	16.32	420,644	73,279	17.42
1915	51,125,620	7,082,791	13.86	4,159,893	542,649	13.04
1916	32,144,283	5,049,283	15.71	509,158	77,965	15.31

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CIGAR EXPORTS.

Twelve months ending June—	Total.			United States.		
	Thousands.	Dollars.	Dollars per M.	Thousands.	Dollars.	Dollars per M.
1907	129,211	4,241,410	32.83	128,826	4,235,225	32.88
1908	106,273	3,414,140	32.13	105,917	3,407,747	32.17
1909	142,088	4,383,893	30.85	141,537	4,375,657	30.92
1910	149,746	4,480,030	29.92	149,469	4,473,123	29.93
1911	174,484	5,355,223	30.69	174,246	5,349,626	30.70
1912	169,765	5,086,711	29.96	169,484	5,077,976	29.96
1913	165,768	5,800,686	35.04	165,524	5,800,162	35.04
1914	162,022	5,597,276	34.68	161,093	5,592,803	34.70
1915	170,264	6,016,122	35.33	169,562	6,006,680	35.42
1916	157,174	5,531,535	35.19	156,996	5,528,496	35.21

LEAF TOBACCO EXPORTS.

Twelve months ending June—	Total.			United States.		
	Pounds.	Dollars.	Cents per pound.	Pounds.	Dollars.	Cents per pound.
1907	3,327,042	1,140,622	34.28	2,800,624	1,077,014	38.46
1908	4,581,668	1,635,579	35.70	4,228,708	1,582,559	37.42
1909	3,063,761	1,123,579	36.67	3,063,761	1,123,579	36.67
1910	2,975,133	1,141,304	38.36	2,924,175	1,137,529	38.90
1911	3,509,501	1,444,901	41.17	3,495,544	1,443,215	41.29
1912	4,680,781	2,228,125	47.60	4,680,781	2,228,125	47.60
1913	7,075,681	3,021,059	42.70	6,952,467	3,006,854	43.25
1914	9,244,490	3,206,610	34.69	6,308,227	2,961,614	46.95
1915	7,268,823	2,971,748	42.26	7,035,777	2,954,804	43.42
1916	6,767,478	2,864,552	42.33	6,705,823	2,857,036	42.62

FRUIT AND NUT EXPORTS.

Twelve months ending June—	Total.			United States.		
		Dollars.			Dollars.	
1907		783,942			779,183	
1908		1,164,261			1,159,336	
1909		1,261,484			1,258,499	
1910		1,635,817			1,632,411	
1911		2,073,993			2,068,194	
1912		2,377,762			2,369,727	
1913		3,120,919			3,115,257	
1914		3,400,903			3,390,554	
1915		3,441,157			3,434,707	
1916		3,355,285			3,324,423	

ALL OTHER EXPORTS.

Twelve months ending June—	Total.			United States.		
		Dollars.			Dollars.	
1907		1,366,640			1,185,326	
1908		1,435,397			1,035,333	
1909		1,474,079			1,188,586	
1910		1,487,544			1,285,041	
1911		1,572,125			1,389,489	
1912		1,713,839			1,582,406	
1913		2,030,427			1,864,222	
1914		2,464,094			2,165,099	
1915		2,566,335			2,095,241	
1916		4,121,473			3,365,549	

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RECEIPTS AND EXPENDITURES.

A comparative statement of all receipts and disbursements of Porto Rico for the fiscal years 1914, 1915, and 1916, expressed in United States currency, follows:

	Fiscal year ending June 30, 1914.	Fiscal year ending June 30, 1915.	Fiscal year ending June 30, 1916.
Balance	$930,024.91	$283,273.23	$575,310.54
Revenues:			
Customs	674,000.00	350,753.16	295,500.00
Internal	3,055,515.50	2,880,964.59	2,879,424.40
Miscellaneous	924,387.20	635,646.24	628,353.31
Other receipts:			
Repayments of loans	1,036,560.65	340,374.20	505,060.38
Repayments and transfers	273,362.38	855,279.84	311,345.09
Repayments, bureau of supplies	721,122.84	355,950.24	342,041.05
Proceeds from bond sales and loans	100,000.00	2,109,738.90	399,656.67
Total	7,714,973.48	7,811,980.40	5,936,691.44
Expenditures:			
Legislative	94,567.07	67,260.65	71,558.23
Executive	1,450,277.69	1,725,050.17	1,249,871.50
Insular police	528,303.20	438,490.82	441,205.53
Maintenance and repairs—			
Roads and bridges	769,674.34	468,297.10	441,760.09
Public buildings	149,961.11	35,564.84	39,706.62
Insular telegraph	88,808.92	72,807.40	71,679.29
Harbor improvements			492.74
Public schools	1,640,824.34	1,257,611.46	1,193,249.53
University of Porto Rico	120,325.94	78,187.08	35,380.71
Sanitation	585,473.63	270,386.24	207,395.99
Insular library	9,926.24	10,019.92	9,213.17
Bureau of supplies	731,768.58	353,835.56	343,766.00
Judicial	527,252.15	493,806.08	460,779.08
Other payments:			
Loans to municipalities and school boards	583,665.25	325,117.64	448,950.00
Repayments and transfers	150,871.79	1,544,234.90	733,415.86
Municipal and school-board bonds		96,000.00	28,500.00
Cash balance	283,273.23	575,310.54	159,767.10
Total	7,714,973.48	7,811,980.40	5,936,691.44

BONDED INDEBTEDNESS.

The bonded indebtedness of the insular government of Porto Rico on June 30, 1916, was as follows:

Title of loan.	Amount outstanding.	Interest.	Maturing.
Road bonds:		*Per cent.*	
1907	$550,000	4	$50,000 on Jan. 1 of each year.
1910	425,000	4	Redeemable after Jan. 1, 1920; payable Jan. 1, 1927.
Irrigation bonds:			
1909	2,550,000	4	$150,000 on Jan. 1 of each year, beginning 1914.
1913	1,000,000	4	Redeemable after Jan. 1, 1933; payable Jan. 1, 1943.
1913 construction and refunding.	700,000	4	$100,000 annually, beginning Jan. 1, 1944.
1914 construction and refunding.	400,000	4	$160,000 annually, beginning Jan. 1, 1951.
1915 refunding	400,000	4	$100,000 annually, beginning Jan. 1, 1955.
San Juan Harbor improvement bonds:			
1912	100,000	4	Redeemable after Jan. 1, 1922; payable Jan. 1, 1937.
1914	200,000	4	Redeemable after Jan. 1, 1924; payable Jan. 1, 1939.
1915	200,000	4	Redeemable after Jan. 1, 1925; payable Jan. 1, 1940.
Public improvement bonds, 1914.	1,000,000	4	Redeemable after Jan. 1, 1925; payable Jan. 1, 1939.
Municipal loans, refunding bonds:			
1914	655,000	4	Serially, 1923 to 1953.
1915	300,000	4	Serially, 1919 to 1935.
Total outstanding	8,480,000		

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III. DOMINICAN CUSTOMS RECEIVERSHIP.

The collections from customs for the year 1915 were $3,867,317, which total surpasses the records of all years except 1912–13, and this notwithstanding the continuance of disturbed world conditions, the curtailment of commerce, and the suspension of trade with several European countries. The increase in revenues was largely due to the enhanced value of imports, which represent an increase in valuation of more than three-quarters of a million of dollars.

In addition to the collection of customs the work of the receivership during the past year has been considerably increased by the taking over the control of all the finances of the Dominican Republic; that is, the supervision and collection of the internal revenue and the disbursement of funds.

J. H. Edwards, who had been in the receivership service since its inauguration in 1905 up to 1913, was appointed special deputy general receiver to supervise this work.

Statement of the Customs Service, Dominican Republic, for the year ended Dec. 31, 1915.

Balance	$253,035.93
Customs collections	3,867,217.00
Miscellaneous	13,293.03
Total	4,133,545.96
Customs expense	153,841.05
Payments:	
Dominican Government	1,646,090.08
Fiscal agent	1,250,000.00
Loan account, authorized Dec 14, 1912	360,000.00
Advance to Dominican Government	7,666.01
Other disbursements:	
Refunds	12,762.57
Frontier customs service	30,758.93
Revenue-cutter service	44,105.05
Building fund	16,984.29
Exchange	5,511.32
Dominican Government, under special authority	6,654.89
All other	5.25
Balances:	
Cash in transit (deputy receivers)	231,568.76
Fiscal agent	346,836.12
Building fund	20,445.22
Dominican Government	316.42
Total	4,133,545.96

Statement of sinking fund, Dominican Republic, $20,000,000 customs administration loan, as of Dec. 31, 1915.

RECEIPTS.

From general receiver of customs, account calendar year:	
1908	$331,757.53
1909	200,000.00
1910	260,820.90
1911	394,092.24
1912	482,772.25
1913	782,908.34
1914	207,666.01
1915	593,588.13
From interest allowed by fiscal agent	98,070.57
From interest received on bonds purchased	359,247.53
Total	3,710,923.50

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DISBURSEMENTS.

For $3,014,200 customs administration bonds purchased, par value	$3,014,200.00	
Less discount	49,815.75	
		2,964,384.25
Cash balance:		
In sinking fund	144,569.60	
With fiscal agent, general account	208,381.52	
With general receiver of customs	393,588.13	
		746,539.25
Total		3,710,923.50

ASSETS IN SINKING FUND.

Customs administration bonds, at par value	3,014,200.00
Interest on above bonds accrued but not collected	52,795.83
Cash balance	746,539.25
Total	3,823,535.08

In addition to the $20,000,000 debt authorized by the convention, a secondary loan of $1,500,000 was authorized in 1912, and placed as of January 1, 1913. To December 31, 1915, $874,000 of this secondary loan had been liquidated. The balance of $626,000 is being liquidated semiannually, and should be entirely paid off by January 1, 1918.

IV. RECORDS IN CUSTODY OF THE BUREAU.

The records of the administration by American officials of the port of Vera Cruz, mentioned in the last report, are available for ready reference. The civil records of the military government in Cuba and a large quantity of Philippine insurgent records are also in the custody of the bureau, and the availability of the latter for reference has been greatly improved by installing new filing cases. The space for storage of the Cuban records is entirely inadequate, as is also that for quite a portion of the less current part of the record files of the bureau. Additional space will be required to maintain the established standards of service and efficiency.

V. LAW OFFICER.

Congress has recently made several important organic changes in the law authorizing and regulating the review of final judgments and decrees of the insular courts by the Supreme Court of the United States with the purpose and effect of relieving that court by limiting its review to cases of unquestioned importance. The district of Porto Rico has been added to the first circuit, and the decisions of the United States District Court for Porto Rico are now reviewable in the circuit court of appeals and in the supreme court, like those of other district courts, while the decisions of the Supreme Court of Porto Rico are reviewable in the Supreme Court of the United States, like those of the highest court of a State, and in the circuit court of appeals when the jurisdictional amount of $5,000 is involved. (38 Stats., 803.) The law as it stood (sec. 244, Judicial Code) did

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not incorporate Porto Rico in a circuit, and provided for direct review by the Supreme Court not only of cases involving a Federal question but also of all cases in which the jurisdictional amount was in dispute, regardless of the character of the question. As amended it continues the right to review when Federal questions are in controversy, but leaves all other cases sought to be reviewed by the Supreme Court to be dealt with, if at all, by certiorari.

A radical change has just been wrought in the law governing review of the decisions of the Supreme Court of the Philippines. By an act approved September 6, 1916, no judgment or decree of that court rendered more than 60 days after the approval of the act shall be reviewed by the Supreme Court of the United States upon writ of error or appeal; but the Supreme Court is left the power to review, by certiorari or otherwise, upon application to be made within six months, any cause which would be subject to review under existing laws.

The Philippine cases heard in the Supreme Court and the Porto Rican cases heard in the Supreme Court and in the Circuit Court of Appeals at Boston recently have been questions involving less of organic than of local administrative law, though not confined exclusively to the latter field. For instance, Porto Rico's organic immunity from suit has been modified by recent decisions of the Supreme Court. While it had formerly been held that Porto Rico possessed that sovereign quality (Porto Rico *v.* Rosaly, 227 U. S., 270), recent decisions have modified the principle as it pertains to that government, so that the law now seems to be that consent to suit or waiver of immunity is not exclusively a legislative function, but that the attorney general, by appearing and defending a suit against Porto Rico, may thereby waive the immunity of the sovereign. (Porto Rico *v.* Ramos, 232 U. S., 627; Richardson *v.* Fajardo Sugar Co., decided Apr. 17, 1916.)

Several of the cases reviewed by the Supreme Court were of more than ordinary administrative or local importance. Such were McMicking *v.* Schields (238 U. S., 99), a question of the extent to which a conviction is reviewable by habeas corpus under the claim that alleged trial errors vitiated the proceedings and enlarged the accused; Sui *v.* McCoy (239 U. S., 139), which involved the powers of the insular authorities under the immigration and Chinese-exclusion laws of the United States as applied in the Philippines; and Gsell *v.* Collector (239 U. S., 39), a question of the jurisdiction of the Supreme Court to review judgments in Philippines customs cases and the proper method of such review. Other cases involved no general principles and were not of general interest.

There are now pending in the Circuit Court of Appeals three cases from Porto Rico and in the Supreme Court of the United States six cases from Porto Rico and five from the Philippines.

Maj. S. T. Ansell, judge advocate, United States Army, has appeared before the Supreme Court of the United States and in the Circuit Court of Appeals in all cases during the year in which the Philippine and the Porto Rico governments were interested.

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VI. PERSONNEL.

Maj. I. L. Hunt was relieved from duty as an assistant to the chief of the bureau, having completed the legally permitted term. The position vacated was filled with the detail of Capt. Fred R. Brown, who has recently been on duty with the Porto Rican Regiment of Infantry.

The law officer has continued to perform important legal services for the bureau and our insular possessions.

Mr. Addison T. Ruan, who had for over 10 years been the purchasing and disbursing officer of the bureau, was appointed financial adviser to the Government of Haiti. On the acceptance of Mr. Ruan's resignation I wrote him a letter, the following abstract from which expresses this bureau's view of his past service:

> Few men have so faithfully worked in connection with every new and important far-away project which the United States has undertaken in the last 20 years as you have. Your work in connection with the two American administrations in Cuba, with the Philippines, with Porto Rico, and with Santo Domingo, though not always in the spot light, has been of great value in carrying out the purposes of the United States in those places. Barely a week has passed in the past 12 years that it has not been necessary to consult with you with reference to important matters bearing on our noncontiguous territory. The fact that you have now been appointed to a more important office shows that I am not alone in appreciating the faithful service that you have rendered.

On September 16, 1916, Mr. Harry F. Worley, who had been connected with this bureau since its organization and who during the first American occupation of Cuba had been in the Cuban customs service, was loaned to the Department of State to occupy for a year the position of general receiver of customs and financial adviser to the Republic of Liberia. Mr. Worley's new appointment, while a reward for his faithful service, will, if he does not return to the bureau, mean a distinct loss.

The bureau has also been deprived during the year by death of the services of Mr. Adolphus D. Wilcox and Mr. Aaron B. Zahn, two of the oldest in service and most faithful and valuable of its force.

In addition to the foregoing, the bureau during the year has lost by transfer to more promising positions seven younger men who have been but a short time with it.

In previous reports I have felt it necessary to call attention to the fact that the occupants of the higher civil positions in the bureau were not adequately compensated. It is, of course, impossible properly to transact the varied business of a bureau such as this without a highly efficient and relatively permanent personnel. I shall again submit estimates which, without increasing the total appropriation of the bureau, will give to those positions that should be filled by men of special training and ability more appropriate salaries.

It is a distinct pleasure and inspiration to serve with the faithful force in this bureau. It is believed that the work of the office force has satisfactorily met the wishes of the governments served by it.

FRANK MCINTYRE,
Chief of Bureau.

The SECRETARY OF WAR.

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REPORT OF THE PHILIPPINE COMMISSION.

[January 1, 1915, to December 31, 1915.]

MANILA, *April 6, 1916.*

SIR: The Philippine Commission has the honor to submit its sixteenth annual report for the fiscal year 1915, covering the period January 1, 1915, to December 31, 1915, except as otherwise stated.

CHANGE OF PERSONNEL.

No change in the personnel of the Philippine Commision has occurred during the year, except the resignation of Hon. Clinton L. Riggs, secretary of commerce and police, who left the islands on April 5, 1915, and resigned on October 31, 1915. His portfolio was taken over temporarily by Commissioner Jaime C. de Veyra. Hon. Winfred T. Denison, secretary of the interior, has been absent on account of ill health since September 28, 1915, on which date he left for the United States.

SESSIONS OF THE COMMISSION.

During the period covered by this report, the Commission held 39 executive sessions; 15 legislative sessions, acting in its exclusive legislative jurisdiction; and 98 sessions, acting as the upper house of the Philippine Legislature.

These sessions covered the period February 6, 1915, to February 24, 1916, which included the fourth session of the third Philippine Legislature, October 16, 1915, to February 4, 1916, and the special session of 1916, from February 14 to 24, all dates inclusive. During this period the Commission, acting within its exclusive legislative jurisdiction over all that part of the Philippine Islands inhabited by Mohammedans or other non-Christian peoples, considered 36 bills, 26 of which were enacted, 3 are pending, and 7 were substituted, postponed, or laid on the table.

LEGISLATION BY THE COMMISSION.

The policy heretofore pursued of extending educational facilities among the Mohammedan and pagan people, and of aiding them in the development of their agricultural and industrial resources, has been consistently adhered to by the Commission during the year.

By the extension to the non-Christian Provinces of laws governing the Christian territory, such as may safely be so applied with slight modifications, it is desired to accomplish not only uniformity of legislation for the entire islands but also the realization of community of interests and civilization of both peoples.

The appropriation for non-Christian Provinces this year reached a total sum of ₱1.923.313.68, as against ₱2,554,991 for last year, a decrease of ₱631,677.32.

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APPOINTMENTS BY THE COMMISSION.

A total of 348 nominations by the Governor General were confirmed by the Commission during the period covered by this report, as follows:

Insular offices	30
Provincial offices	16
Offices of the city of Manila	3
Offices of the city of Baguio	2
Justices of the peace	116
Auxiliary justices of the peace	181
Total	348

SESSIONS OF THE LEGISLATURE.

During the period covered by this report there were held in Manila the fourth session of the Third Philippine Legislature, beginning October 16, 1915, and ending February 4, 1916, and the special session of 1916, beginning February 14, 1916, and ending February 24, 1916. During this period there were considered by the Commission in its capacity as a chamber of the Philippine Legislature 68 commission bills, of which 40 were passed by the Commission and sent to the Assembly; 28 were tabled, postponed, or substituted by the Commission. Of the bills passed by the Commission 23 were passed by the Assembly without amendment, 13 were amended and passed by the Assembly, 4 remained undisposed of in the Assembly at the close of the Legislature. Of the 13 bills amended by the Assembly the amendments were concurred in by the Commission on 7 and conferences were held on 6, and agreement reached on 5. A total of 35 Commission bills were finally enacted by the Legislature.

During the same period there were considered by the Commission 207 bills of the Assembly, of which 26 were passed by the Commission without amendment, 54 with amendment, and 127 refused passage, laid on the table, or undisposed of. Of the 54 Assembly bills passed by the Commission with amendment the amendments were agreed to by the Assembly on 42 and conferences were held on 12, all resulting in agreement. A total of 80 bills of the Assembly were finally enacted by the Legislature.

The Commission considered and adopted three Commission joint and concurrent resolutions, of which two were adopted by the Assembly without amendment and one with amendment, the amendment not being concurred in by the Commission. A total of two Commission joint and concurrent resolutions were adopted by both houses.

There were received from the Assembly seven Assembly joint and concurrent resolutions, of which five were passed by the Commission without amendment, and two were tabled by the Commission. A total of five Assembly joint and concurrent resolutions were adopted by both houses.

A total of 115 acts were passed by the Legislature during the period covered by this report.

APPROPRIATIONS.

Of the 115 acts passed by the Legislature 18 make appropriations of funds aggregating ₱30,450,941.28.

The current expense appropriation act was enacted earlier in the session than heretofore, thus insuring the maintenance of the govern-

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ment and giving chiefs of bureaus and offices sufficient time and opportunity to perfect their future plans and arrangements. The total amount appropriated by this act is ₱25,468,913.31, as against ₱25,296,668.50 for 1915, an increase of ₱172,244.81.

The public works appropriation was decreased from ₱3,551,300.40 for 1915 to ₱2,621,000 for 1916. The increased cost of materials and supplies due to the European war, and other important legislation requiring large expenditures of funds, such as the Philippine National Bank and the proposed railroad purchase, made it advisable to curtail to a certain extent the construction of new public works and permanent improvements. This is not an indication that the bureau of public works will have less work this year and require the disbanding of the organization and personnel, inasmuch as funds available from previous appropriations will enable the bureau to maintain its activities to the fullest extent.

CHARACTER OF LEGISLATION.

The legislation of this year has been characterized by the constant realization of the economic needs of the country and the earnest desire on the part of both houses to reach an agreement on all important subjects. It is for this reason that, notwithstanding the strong difference of opinion between the two houses, it was possible to enact laws providing for an internal-revenue emergency tax, inheritance tax, the immunization of cattle and carabao, the purchase of the majority stock in the Manila Railroad Co., penalizing usury, and creating the Philippine National Bank. The mere mention of these acts demonstrates the fact that the Legislature has accomplished a great work in the line of constructive legislation.

Mention is herein made of the most important acts, explaining as briefly as possible the purposes and results sought for.

Primary Schools for Non-Christians.

Act. No. 2531 appropriated ₱1,000,000 for the advancement of educational work among the non-Christian people. Attention is called to the fact that this act, which originated in the Assembly, was the first act passed by the Legislature in its fourth session. The charge has often been made that the Christian Filipino thinks little and cares less for the backward people of his race, but this act, which shows great liberality on the part of the Legislature, does not accord with such views.

Emergency Tax.

The continuance of the European war, which has caused a falling off in customs duties on imports, made it necessary to frame Act No. 2541, known as the emergency taxation act, which is similar to that of last year, with various amendments, and is to be in force for two years.

Immunization of Cattle.

Experience has demonstrated that quarantine alone is not sufficient to eradicate rinderpest from the islands, although its spread is undoubtedly greatly restricted by the efforts put forth by the people to that end. Nevertheless, recent investigations of the subject

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indicate that a satisfactory solution of the question may be found in simultaneous inoculation, resulting in more or less permanent immunization of cattle against the ravages of rinderpest. Act No. 2548 provides for carrying on immunization on a large scale and appropriates ₱50,000 to be carried in a fund to be known as the immunized cattle insurance fund. An appropriation of ₱25,000 is also made by Act No. 2651 to cover the necessary expenses connected with the immunization of cattle and carabao by virtue of the provisions of Act No. 2548, while Act No. 2650 authorizes the investment of the immunized cattle insurance fund in such loans and securities as are authorized for the investment of other trust funds. Act No. 2573 also provides for the insurance of work animals.

Reorganization of the Philippine Library.

Act No. 2572, creating the Philippine Library and Museum, which originated in the Assembly, has for its purpose the consolidation of several offices performing similar functions; assembling in one department materials and records which were scattered among several bureaus and offices, but properly belonging to the library and museum; placing the division of archives, patents, copyrights, and trade-marks of the executive bureau under the jurisdiction of the library; organizing a legislative reference library; and performing such other functions as properly may belong to a national library and museum.

Mutual Insurance of Work Animals.

Act No. 2573 authorizes the creation of a division in the bureau of agriculture to be known as the division for the mutual insurance of work animals, and for the organization of a society to be known as the work animals insurance society, the management of which shall be vested in a board of three members, composed of the director of agriculture, as chairman, the insular treasurer, and a third member to be appointed by the Governor General, with the consent of the Philippine Commission. The fundamental object of this act is the reimbursement of owners of work animals for losses from disease or other causes and is cooperative in its nature.

Sugar Central.

The sugar central board created last year has rendered valuable services to the government and was ready to execute contracts for the construction of a modern central at Isabela, in the Province of Occidental Negros, and had under consideration the construction of other centrals, thereby placing the sugar industry of the islands upon a footing where it could safely compete with any of the sugar-producing countries of the world. Unfortunately the disturbed conditions due to the European war made it impracticable to enter into such contracts. However, the board gained valuable experience and found that Act No. 2479 was deficient in certain respects for the effective carrying out of its purposes. This amendatory Act No. 2577 was enacted upon recommendation of the sugar central board for the purpose of curing these defects, and it is believed that when conditions shall have returned to normal the central sugar board

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will then be able to render a very valuable service to the government and the people in the way of practical aid and encouragement to the sugar industry.

Purchase of the Manila Railroad.

This act (No. 2574) authorizes the Governor General to execute a certain memorandum of agreement with the Manila Railroad Co. and the Manila Railway Co. (1906) (Ltd.), making appropriations for the purpose of carrying out said memorandum of agreement, and for other purposes.

Tonnage Dues on Vessels.

The passage of Act No. 2579 was recommended by the committee on tax and tariff investigation created by concurrent resolution No. 14. The collection of tonnage dues on vessels is a very common source of revenue in other countries. In the Philippine Islands they were formerly collected under the provisions of the act of Congress approved March 3, 1905, but the Commission was authorized by said act of Congress to suspend or repeal such dues, and they were repealed by Act No. 1535. The falling off of customs duties on imports made it advisable to find new sources of revenue, and this act was enacted by the Legislature for that purpose. The dues have been placed at a very low figure so as not to discourage shipping in any way.

Regulating Sponge Fisheries.

Act No. 2584 prohibits the taking of sponges of less than 10 centimeters through any diameter, requires grading of sponges exported, prohibits the "loading" or impregnating of sponges with foreign substances for the purpose of increasing their weight, and prohibits the taking of sponges by use of dredges except in waters of more than 30 fathoms in depth. The secretary of the interior is given administrative control over sponge fisheries. Concessionaires are required to pay an annual fee of ₱25 per square kilometer and must confine their operations to the area specified in permits issued them.

Civil-Service Employees' Retirement.

Act No. 2589 provides for the payment of a gratuity to regularly and permanently appointed officers and employees in the Philippine civil service who retire after at least six years' continuous, faithful, and satisfactory service. For many years the enactment of a pension and retirement law has been recommended by former Governors General, the Bureau of Insular Affairs, and the bureau of civil service, but the large extraordinary expense involved has heretofore prevented the passage of such legislation. This act has been so drawn as to prevent increased expense to the government, inasmuch as positions made vacant by retirement are, with certain exceptions, declared ipso facto vacant and can not be re-created except upon recommendation of the emergency board, with the approval of the Governor General, and if re-created the salary of the position is automatically reduced by one-third. The act should therefore effect a real econ-

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omy. Filipinization of the service has been consistently followed during the present administration, but American employees who have been in the service for many years have in most cases lost touch with men and affairs in the United States and are frequently unable to make sufficient savings from their salaries to maintain them until they are able to secure other suitable employment. The payment of the gratuity provided for by this act removes this difficulty to a large extent. The element of personal hardship, which has been a great obstacle to the Filipinization of the service, is also minimized thereby when necessary reduction of force requires separation from the service. The act has met with general favor.

Infant Industry Subvention.

Act No. 2596 provides for the creation of a board to be known as the new industries board, and to consist of the secretary of commerce and police, as chairman; the insular auditor; the attorney general; and two members appointed by the Governor General with the consent of the Commission. It authorizes the Governor General, upon recommendation of the board, to guarantee on behalf of the insular government interest or dividends not to exceed 5 per cent per annum on capital invested in new agricultural, commercial, or industrial enterprises. It appropriates a sum of not exceeding ₱200,000 for such purposes.

Coconut Products Board.

Act No. 2598 is essentially the same as the sugar central act. It provides for the creation of a coconut products board, to be composed of the Governor General, the speaker of the Philippine Assembly, or their authorized representatives, and one member appointed by the Governor General, with the consent of the Commission. Its purpose is to assist coconut growers in improving the production and quality of copra and in the establishment of factories for the extraction of coconut oil and for the encouragement of related industries. It is believed to be constructive legislation from the viewpoint of the financial and material development of the country.

Inheritance Tax.

The enactment of Act No. 2601 was recommended by the committee on tax and tariff investigations created by concurrent resolution No. 14. The contingent falling off of customs revenues due to the European war made it necessary to find other sources of revenue to offset the loss. Other countries impose the inheritance tax, and it has been found to be an efficient means of increasing the public revenues inasmuch as it is an easy tax to collect and does not require the creation of additional machinery for enforcing payment.

Pearl Fishery.

The purpose of Act No. 2604 is the protection of the pearl fishing industry, which is of considerable importance in the waters of the Department of Mindanao and Sulu. Former legislation had proven unsatisfactory and prejudicial to both the government and to per-

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sons engaged in this industry. This act fixes the minimum sizes of shells which may be taken in Philippine waters and prohibits the exportation of shells except through the customhouse at a port of entry. The secretary of the interior is given administrative jurisdiction in carrying out the provisions of this act. It is believed that it will encourage the development, under proper supervision, of fields now known and will lead to the discovery and development of new fields. Its enactment was favored by persons engaged in pearl fishing and in industries allied thereto, such as the button industry.

Constabulary Academy.

The establishment of a training school for officers of the Philippine Constabulary has been considered by the Legislature for some time. The plans heretofore proposed involved such a large expense that until the enactment of this act no definite legislative action has been taken. However, the Philippine Constabulary established administratively and has maintained a school of this character at Baguio for some time. Act No. 2605 gives greater official recognition to said school and prescribes its personnel, increases the number of cadets which may be selected after examination, and provides the manner in which they shall be nominated, specifies the courses of study and the length of time cadets shall be in training, and provides that the funds necessary for carrying out its provisions shall be made available by legislative enactment upon estimates submitted from time to time by the chief of constabulary, approved by the secretary of commerce and police.

Philippine National Bank.

Act No. 2612 provides for the establishment of a banking institution, with the majority control permanently vested in the government. After its enactment the bank was promptly organized, and, pursuant to its provisions, took over the Agricultural Bank of the Philippine Government. The act provides for a capital stock of ₱20,000,000, of which ₱10,100,000 will be subscribed by the government and ₱9,900,000 offered to the public at par. The bank is authorized to engage in a general banking business, but its fundamental purpose is to provide additional credit facilities for the development of agriculture and industry in the Philippine Islands, which has been greatly retarded in the past by the usurious rates of interest charged for the use of capital. The establishment of this bank has been received with general favor by those interested in agriculture, manufacturing, and commerce.

Tobacco Inspection.

Act No. 2613 is similar in its fundamental principles to the fiber-inspection act (No. 2380), which has proven very efficient in standardizing and improving the quality and reputation of Philippine fibers. Tobacco products form one of the principal items of export of the Philippines, as well as an important source of internal revenue for the government. The act provides for furnishing gratuitously selected seeds to planters; for the appointment of inspectors in each tobacco-producing Province; for stimulating the production of su-

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perior tobacco; for rewards to discoverers of means to combat tobacco pests; for rules respecting the classification, marking, and packing of tobacco for domestic sale or for export; for inspection of tobacco before removal from the Province of its origin; for inspection after manufacture; for return to the Philippine Islands or reconditioning of cigars and cigarettes which have become worm-eaten, musty, or moldy after arrival in the United States; for the advertising of Philippine tobacco products; for the establishment of tobacco warehouses in the Philippine Islands and in the United States; and for the payment of bounties to encourage the production of leaf tobacco of high quality. It makes an appropriation of ₱15,000 for carrying out the purposes of this act. The collector of internal revenue is charged with the enforcement of its provisions and of the regulations issued in accordance therewith. The director of agriculture is charged with the duty of executing and enforcing the provisions referring to the cultivation of tobacco.

Conservatory of Music.

Act No. 2623 provides for the establishment of a conservatory of music as a college of the University of the Philippines. Its establishment has been recommended for some time, but for various reasons it has not heretofore been considered feasible to comply with the popular demand for such an institution. It is believed that the conservatory, which will be ready to begin work at the next opening of the university, will receive the cordial support of the Filipino people, whose love for music and natural musical abilities are well known.

Handicraft Products.

Act No. 2629 has for its purpose the organization and standardization of household industries of the Philippine Islands. In other countries household industries have been fostered by the government, which added greatly to their prosperity. It is believed that the effect of this act will be of greatest advantage, not only to persons engaged in household industries, but to the general welfare of the country.

Infant Mortality.

The importance of Act No. 2633 can not be overestimated. Some steps have been taken in the past by the government looking to the reduction of infant mortality. A committee was appointed to study the causes of the excessive death rate among infants, and made an exhaustive report to the Legislature, embodying its recommendations. This is the first time that the government has taken up the task of reducing infant mortality in a large way. The loss to the islands caused by the death of so many of its inhabitants during infancy can not be estimated in terms of dollars and cents. Large sums of money have been spent for public works and permanent improvements for the prevention and cure of human and animal diseases, for the encouragement and development of agriculture and industry, and for other laudable purposes. By this act the Legislature has taken a forward step toward the improvement of the citizens and the increase of the population of the Philippine Islands. The

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Gota de Leche of Manila has accomplished a great work with limited resources. The extension of its activities to the Provinces and municipalities of the islands, it is believed, will be of great benefit to the general welfare of the people.

Usury Law.

The Legislature has considered in several of its sessions proposed legislation prohibiting and penalizing the charging of usurious rates for the use of money. This has been a very difficult subject, although one of the most important which has engaged the attention of the lawmaking body. Perhaps no other one thing has so greatly retarded the development of Philippine agriculture, industry, and commerce as the prevailing practice of charging exorbitant rates of interest whenever possible. The general lack of registered land titles and of other securities acceptable to banking institutions has placed the producer and dealer at the mercy of those who were willing to advance capital for carrying on such operations, but only upon terms prescribed by themselves and usually ruinous to the borrower. Every effort has been made by the government to expedite cadastral surveys so that registration of land titles might be facilitated and such land titles used as security for loans from government or private banks; the Agricultural Bank has rendered very valuable service in relieving the needs of the farmers who were able to furnish securities that the bank could accept; the postal savings bank, within the limitations prescribed by law with respect to the investment of its deposits, has been of assistance in many ways; the government has from time to time deposited with private banks considerable sums of money for loans at reasonable rates of interest to planters in the sugar-producing Provinces, when such planters could furnish the necessary collateral; but usury continued to be a big problem. The question has been considered by committees of the Legislature; public hearings have been held, at which persons interested were invited to present their views; the matter has been discussed in all all its phases by the press and people, and Act No. 2655, while not everything that could be desired, is believed to be a material advance in the solution of this complex problem.

Administrative Code.

Act No. 2657 is a codification of the general statutes relating to the organization and administration of the Philippine government. It consists of 4 books, 15 titles, and 57 chapters. Book I relates to the organization, powers, and general administration of the Philippine government; Book II relates to the organization and administration of the bureaus; Book III relates to the government of Provinces and other political divisions; and Book IV relates to penalties for violations of the general statutes. The Administrative Code is the first submitted to the Legislature by the code committee for adoption. The Remedial, Correctional, and Civil Codes are to follow. The Administrative Code represents exhaustive work by the code committee, which was reviewed by a joint legislative committee of the two houses of the Legislature. It was carefully considered by the Legislature, and it is believed that its adoption and the adoption of the

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other codes which are to follow will be a great step forward toward securing uniformity of legislation in the islands.

The acts passed by the Commission and the Legislature during the period covered by this report are numbered 2517 to 2657, inclusive.

A complete list of all bills enacted by the Philippine Legislature during the period covered by this report is also attached hereto as Appendix B.

GENERAL CONDITIONS IN THE ISLANDS.

The general conditions in the islands during the year have been satisfactory. The governmental functions of all bureaus and offices have been performed with increased economy and without impairing their efficiency. Peace and order have not been disturbed. The trade of the islands has increased, notwithstanding the world-wide financial crisis. Harmony between Americans and Filipinos has constantly grown, due to the expected action of Congress on the pending Jones bill, which is regarded as fulfilling the aspiration of the people of the islands for justice and liberty.

The reports of the Governor General and the various heads of departments and chiefs of bureaus and offices show in a more detailed manner the progress in every direction accomplished during the year.

Respectfully submitted.

FRANCIS BURTON HARRISON, *President.*
RAFAEL PALMA, *Member.*
VICTORINO MAPA, *Member.*
JAIME C. DE VEYRA, *Member,*
V. ILUSTRE, *Member.*
V. SINGSON ENCARNACIÓN, *Member.*

REPORT OF THE GOVERNOR OF PORTO RICO.

GOVERNMENT HOUSE,
San Juan, Porto Rico, September 11, 1916.

SIR: In pursuance of law I have the honor to present the following report of the Governor of Porto Rico covering the fiscal year ending June 30, 1916.

INTRODUCTION.

It is gratifying to be able to report that Porto Rico has completely recovered from the economic embarrassment under which the island had been laboring for some three years. That its former prosperity has been regained and surpassed is evident, not only from casual observation of business conditions, but also from a study of the figures and tables of external trade which are published in this report. The chief factor in this restoration of prosperity is the extraordinary revival of the sugar industry, the chief industry of the island, which has been brought about by the high price of sugar, supplemented by the repeal of the free-sugar clause of the Simmons-Underwood tariff.

The total value of exports for the year ending June 30, 1916, was $66,731,573, the highest total ever recorded, overtopping the figures of the previous year by $17,374,666. This is an increase of about

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35 per cent over the exports of last year or those of any previous year. The increase in sugar alone was $18,530,691, going up from $27,278,754 in 1915 to $45,809,445 in 1916, due to a large increase in both the quantity produced and the price. The quantity of sugar exported during the fiscal year was 424,955 short tons. This was 42,255 tons in excess of the highest previous record, that of 1913, when the exports amounted to 382,700 tons. This showing, however, does not do complete justice to the year just closed; for, owing to shipping and other difficulties, a much larger amount of sugar was left on the island at the close of the fiscal year than usual. It is predicted that with a continuance of the present favorable weather conditions the amount of sugar produced in Porto Rico during the next fiscal year will reach a total of half a million tons.

It is interesting and important to note that the increase in the total exports was more than one million dollars less than the increase in sugar alone, showing that there was a considerable decrease in the total exports of articles other than sugar. As for some years strong efforts have been made to diversify agricultural production, so that economic life might have a broader base, it is important to study the figures in some detail to see whether this decline was due to the revival of heavy planting of sugar. In the production of some of the articles other than sugar there were gratifying increases, although there were decreases in others.

Practically all the decrease is accounted for in four articles, namely, coffee, pineapples, cigars, and tobacco, which together showed a combined decrease of $3,236,826. On the other hand, there were seven articles which showed increases in export figures, amounting when combined to almost two million dollars. The most notable of these are molasses, oranges, and straw hats, which show increases varying from 70 to more than 100 per cent over the figures for the preceding year. Moreover, it is proper to add that all the decreases were due to weather or other accidental causes and in no way connected with the increased planting of sugar.

The most distressing and discouraging decrease in exports was the appalling decline in quantity of coffee. This dropped from 51,125,620 pounds in 1915 to 32,144,283 pounds in 1916, a decrease of about 37 per cent. Although this heavy slump in quantity was partly compensated for by an increase in price, it nevertheless resulted in a decrease in the value of coffee exports of more than $2,000,000.

Unfortunately this occurred at the very moment when we were endeavoring to widen the markets for Porto Rican coffee by maintaining a coffee exhibit at the Panama-Pacific Exposition, hoping thereby to attract American consumers. Whatever interest was created by this exhibit was immediately nullified by this greatly diminished supply and the consequent increase in price.

Turning to imports, we find an increase in the total value of imports of $5,066,860, going up from $33,884,296 last year to $38,951,156 this year. Imports from foreign countries gained in value only $104,176, reaching a total of $3,058,641. On the other hand, imports from the United States gained in value $4,962,684, increasing from $30,929,831 in 1915 to $35,892,515. Undoubtedly a considerable part of this increase in value was due to the higher cost of the articles imported, which in turn is due to the great war and higher freight rates, but it

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is also due in part to increased prosperity and greater purchasing power of the Porto Rican people.

For the first time in the history of the island the total external trade has exceeded $100,000,000, reaching the great sum of $105,682,729, the highest previous record being $92,678,304 in 1912. The year under review exceeded these figures by about $13,000,000. The balance of exports over imports also far exceeded all previous records. Last year the trade balance in favor of Porto Rico reached the unprecedented sum of $15,472,611. This year even that remarkable balance was almost doubled, the exact trade balance in favor of Porto Rico being $27,780,417. Most tropical countries are debtor countries and are therefore compelled to export more merchandise than they import in order to pay their obligations abroad, and for the past 14 years with one exception Porto Rico has had a balance of trade in her favor, but never before has this balance reached anything like the large figures recorded last year, or even those of the previous year. At the present rate of settlement the foreign obligations of this small island ought speedily to be canceled. The combined trade balances for the past two years amount to $43,253,028, a sum equal to nearly one-fourth of the entire assessments of property for purposes of taxation.

Another feature is worthy of special notice. Porto Rico has again during the past year emphatically reasserted the tendency of its external trade to confine itself to the United States. Nearly 92 per cent of all the external trade was carried on with the United States, reaching a total value of $96,845,283 out of a grand total of $105,682,729. A chart is published on another page showing graphically how this percentage has steadily increased since 1901, when it was about 72 per cent, until last year, when it was 92 per cent. In the amount of its total trade with the United States Porto Rico stands fifteenth in the list of all the countries of the world.

Internal business has already responded to the change in economic conditions. Debts have been liquidated and trade has expanded in various directions. The lessons of the past crisis have not been forgotten, however, and business is proceeding upon more conservative lines than before the crisis. During the fiscal year 16 new domestic corporations with a paid-up capital of $187,900, and 14 foreign corporations with a paid-up capital of $21,407,100 were officially registered and authorized to transact business of various kinds. Of the domestic corporations about one-half were for the purpose of establishing manufacturing industries. These facts speak eloquently of the changed attitude as to the future which possesses the minds of the business men at this time as compared with that of last year. The figures show a very large increase in the paid-up capital of both the foreign and domestic corporations.

A study of the consolidated bank statement, published elsewhere in this report, affords interesting additional evidence of the improvement of business conditions. The aggregate deposits in the 11 recognized banking institutions reach a total of nearly $17,000,000. This is an increase of nearly $7,000,000 over those of the year before, and of about $5,000,000 over those of the year 1913, the highest on record. The amount held outside the island in the hands of correspondents has increased from $3,500,000 last year to over $5,000,000 this year, while the amount owed by island banks has been reduced

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from over $2,500,000 to a little more than $500,000. The loans and discounts items show an increase of more than $1,000,000, while the stock of cash held by the various banks has increased by more than $2,000,000. The interest rate has also decreased somewhat, and the bankers maintain that all legitimate interests offering proper security have no difficulty in securing accommodations. The average cash reserve seems more than ample to cover all possible contingencies.

The Bureau of Weights and Measures again deserves especial mention for the skill and diligence with which its officials are developing their work of protecting the people of all classes against fraud in weights and measures. During the past year especial attention was given to the inspection of the measures used by the coffee pickers with gratifying results. Great energy was displayed by the inspectors in suppressing all kinds of false standards and prosecuting those who used them in violation of law. During the year 1,046 cases of violation of the law of weights and measures were presented to the courts, and in 924 cases the defendants were convicted and sentenced by the courts.

The development of agriculture is receiving as careful attention as is possible with the organization and resources at the command of the government. Two experiment stations, that of the Federal Government at Mayaguez and that of the insular government at Rio Piedras, are working in cooperation with each other along the lines usual in such institutions. The insular board of commissioners of agriculture, in addition to maintaining the experiment station at Rio Piedras, has also carried on other work of disseminating among the farmers useful information and of enforcing the quarantine regulations to prevent the introduction of plant diseases, etc., as explained elsewhere in this report. Private individuals and corporations are also cooperating with these public efforts to improve and diversify the agricultural activities of the Porto Rican people. During the last year promising experiments have been made by several private citizens looking to the production of rice in the island. These experiments have already proceeded so far as to demonstrate the feasibility of growing rice profitably upon the lowlands of the island, and the hope is held out that this island may speedily become self-supporting as to this staple article of food. As the annual importations of rice at the present time amount to more than $5,000,000, it can easily be seen that this is a matter of no little importance. The greatest difficulty confronting all these efforts at improvement is the unusually large amount of ignorance, poverty, and helplessness which exists among the agricultural laborers and farmers of Porto Rico, especially in the matter of adopting new methods of doing those things which for many generations have been done in stereotyped and obsolete ways. The appropriation of $10,000 a year made by the last Congress for agricultural extension work in Porto Rico will prove of very great assistance in this tremendous task. There is especial need for such work among the coffee planters. For many years great efforts have been made by the Government to enlarge the market for Porto Rican coffee, especially in the United States. Last year a coffee exhibit was maintained throughout the period of the Panama-Pacific Exposition at San Francisco for the purpose of advertising this coffee, only to find that the production of coffee, which has always been limited, declined in quantity more than 37 per cent during the very

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year that the exhibit was maintained. It is now evident that the most sensible way in which the Government may aid the coffee industry is to endeavor to increase the amount and the stability of the annual production by improving methods of planting and cultivation.

As has been many times stated, agriculture is the great basic industry of Porto Rico and is now and will continue indefinitely to be the source of livelihood of more than four-fifths of its people. The diversification and general upbuilding of agriculture is the fundamental economic task of both the people and the government of the island. While the government is doing and shall continue to do everything possible to encourage the introduction and development of manufacturing enterprises, it must not overlook the indisputable fact that Porto Rico, like all tropical countries, must depend largely upon agriculture. In this task the two most immediate needs of the island at present are as follows: First, the unification of all of the government's activities in this direction under the head of a regular department of agriculture and labor which the passage of the new organic act would enable us to establish; second, some method of extending among the small farmers the benefits of rural credit, either through the application to Porto Rico of the rural-credit legislation recently passed by Congress or through the establishment of a people's bank especially devoted to this task.

As will be seen from the report of the commissioner of education, the work of this department, in spite of reduced appropriations, was continued throughout the year with unabated hopefulness and energy; but it will also be seen how much remains to be done before the educational work of the island can be brought up even to the most pressing needs of the great and growing population. Of the 419,599 persons of legal school age, 151,562 were enrolled in all the public schools; that is, 35.8 per cent. Of the entire school population 79 per cent live in the rural barrios, and of these only 26 per cent were enrolled in the rural schools. Even this percentage was accomplished only by an extraordinary use of the double-enrollment plan, whereby each teacher is supposed to give instruction to 80 children, 40 in the morning and 40 in the afternoon of each school day. In the urban centers 72.5 per cent of the children of legal school age were enrolled. The pupils were taught by 2,488 teachers, of whom 2,296 were Porto Ricans and 172 Americans. The public schools were conducted in 1,506 different school buildings, of which 486 are public property and 1,020 are rented. During the past year 59 new sites for school buildings were acquired and 83 new school buildings have either been completed or are in process of construction. The total expenditure of public funds for educational purposes was $1,840,016, of which $1,348,306 was from insular funds and $491,710 from school-board funds. To the intelligent reader these simple facts and figures reveal clearly the real situation as to educational progress in Porto Rico. More schools, more buildings, more teachers, especially in the rural barrios, must somehow be provided before any serious impression can be made upon the tremendous illiteracy which prevails among the masses of the people of Porto Rico. From most of the schools numbers of pupils are turned away for lack of room and of teachers. A touch of sardonic humor is added to the situation by the fact that we have a compulsory school law in Porto Rico. There would be created an interesting and dramatic scene if all of the children who are under

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legal compulsion to attend school were to present themselves some morning at the schoolhouses of this island.

Great efforts were made during the past year by the commissioner of education with all the resources at his command to increase the general efficiency of the work of his department, especially throughout the rural districts where the need is so urgent. Some progress was made in the development of prevocational and industrial education, with promising results considering the limited amount of funds available for the purpose. Upon the whole it is difficult to see how much more could be accomplished with the amount of appropriations that have been made for this department. It is proper to state, however, that the legislature availed itself of its first opportunity by increasing the appropriations at its last session providing for the establishment of 275 additional rural schools. This is an increase of 20.7 per cent over the present number.

A thorough review of the work of the year, with complete statistics, is contained in the report of the commissioner of education published elsewhere in this volume.

On account of a large reduction of the appropriation for the sanitation service there has been great difficulty in maintaining the standard as to general health conditions in the island. The efficiency of the service was tested during the past year in handling and suppressing two slight epidemics. In the month of October there appeared in San Juan an outbreak of dengue fever in mild form which assumed the proportions of an epidemic. A difference of opinion developed among the medical authorities of the island as to whether this might not be in reality a very mild form of yellow fever. In order to settle this matter the Federal Government kindly sent to Porto Rico the two highest authorities upon yellow fever in their service, namely, Surg. Gen. Gorgas, of the United States Army, and Asst. Surg. Gen. Carter, of the United States Public Health Service. Both of these distinguished experts officially settled the controversy by pronouncing the disease to be dengue fever, and suggested methods for its suppression. The disease was quickly stamped out, but in doing so a resumption of the campaign for the suppression of mosquitoes was inaugurated by the sanitation department, which, although it caused some additional expense, undoubtedly resulted in substantial benefit both as security against disease and improvement in the general comfort of the people. During the month of May there was an outbreak of smallpox in epidemic form in San Juan and Trujillo Alto. The disease was in mild form, but continued to develop for some two or three months in these municipalities before it was finally suppressed. This also had beneficial results by affording an opportunity for a general revaccination, which had been neglected for several years. About 100,000 people were vaccinated in the communities affected.

The sanitary surveys of various watersheds by the engineers of this department was continued throughout the year, this work being necessary because of the growing interest in waterworks systems among the municipalities, which resulted in the completion during the year of a number of aqueducts and the initiation of work upon others.

The rate of mortality increased from 19.7 in 1914–15 to 21.9 in 1915–16, due largely to the increased prevalence and higher mortality of malaria and tuberculosis.

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External Commerce.

The value of imports and exports during the fiscal year 1915–16 aggregated $105,682,729, an increase of $22,441,526 over the corresponding total of the preceding year, and the largest in the history of the island. Imports were valued at $38,951,156 and exports at $66,731,573, an increase in the former of $5,066,860 and in the latter of $17,374,666. The causes and the significance of these figures have already been discussed in this report.

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Breadstuffs to the value of $8,632,139 were imported during the year, of which $8,590,456 came from the United States and $41,683 from foreign countries. The chief items were, as usual, rice valued at $5,598,779 and wheat flour valued at $1,954,301. Importations of cotton goods aggregated $3,921,264; fertilizers, $1,735,391, an increase of $657,971 over the preceding year; manufactures of iron and steel $2,641,012, an increase of over $1,000,000; meat and meat products $3,563,088, an increase of $180,213; leather goods $1,598,496, an increase of $296,373. The importations of dairy products from the United States show an increase of $228,686 over last year, being valued at $496,177, while the imports of this commodity from foreign countries, valued at $194,753, show a falling off of $97,153. The value of jute bags imported from the United States shows a decrease of $69,473 as compared with 1914–15. Importations of fish and fish products decreased $136,782 from the United States and increased $147,843 from foreign countries. The value of carriages, cars, and parts, all imported from the United States, was $1,087,748 during the year, as against $653,943 from the United States and $158 from foreign countries during 1914–15, a total increase of $433,647. The importations of beans and dried peas from the United States were valued at $795,276, or $123,113 more than last year.

Sugar exports amounting to 424,955 short tons, valued at $45,809,445, are the largest ever made from the island, being 130,480 tons and $18,530,691 greater than during the fiscal year 1914–15.

Table No. 8.—*Sugar exports.*

Fiscal year.	Short tons.	Value.	Average price per ton.
1901	68,909	$4,715,611	$68.43
1902	91,912	5,890,302	64.08
1903	113,108	7,470,122	66.04
1904	129,647	8,690,814	67.03
1905	135,663	11,925,804	87.90
1906	205,277	14,184,667	69.10
1907	204,079	14,770,683	72.37
1908	234,607	18,690,504	76.52
1909	244,257	18,432,446	75.46
1910	284,522	23,545,922	82.75
1911	322,919	24,479,346	75.81
1912	367,145	31,544,063	85.92
1913	382,700	26,619,158	69.55
1914	320,633	20,240,335	63.12
1915	294,475	27,278,754	92.64
1916	424,955	45,809,445	107.79

The exportation of unmanufactured tobacco amounted to 8,084,914 pounds, over 1,000,000 pounds less in quantity and $171,270 in

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value than the exportations of that product in the preceding year. The exports of cigars and cigarettes were also considerably less in quantity and value than last year.

TABLE No. 9.—*Cigars.*

Fiscal year.	Withdrawn for consumption.	Withdrawn for export.	Total output.
1907	74,698,430	132,669,823	207,368,253
1908	76,983,830	103,781,719	180,765,549
1909	84,933,260	140,302,271	225,235,531
1910	92,700,160	151,724,438	244,424,598
1911	101,064,495	174,743,098	275,807,593
1912	111,682,615	169,765,656	281,448,271
1913	119,038,300	[1] 165,768,512	284,806,812
1914	122,711,543	[1] 150,363,991	263,075,534
1915	101,423,083	[1] 174,275,407	275,698,490
1916	[1] 109,130,296	[1] 159,248,855	268,379,151

[1] Treasury figures.

TABLE No. 10.—*Cigarettes.*

Fiscal year.	Withdrawn for consumption.	Withdrawn for export.	Total output.
1907	347,722,000	10,460,000	358,182,000
1908	354,407,900	11,232,424	365,640,324
1909	365,525,500	11,244,500	376,770,000
1910	393,844,300	13,142,000	406,986,300
1911	459,710,045	11,760,000	471,470,045
1912	532,431,000	[1] 11,293,350	[1] 543,724,350
1913	464,861,210	[1] 8,907,600	[1] 473,768,810
1914	376,695,120	[1] 6,195,000	[1] 382,890,120
1915	339,080,165	[1] 12,020,750	[1] 351,100,915
1916	[1] 308,025,865	[1] 11,785,430	[1] 319,811,295

[1] Treasury figures.

TABLE No. 11.—*Tobacco leaf and scrap exported.*

Fisca year.	Pounds.	Value.	Fiscal year.	Pounds.	Value.
1907	4,344,659	$1,232,058	1912	5,456,751	$2,320,130
1908	8,402,280	1,996,055	1913	8,536,776	3,188,227
1909	4,539,320	1,250,237	1914	9,244,490	3,206,610
1910	4,176,172	1,258,317	1915	9,285,333	3,204,423
1911	4,450,012	1,554,783	1916	8,084,914	3,033,149

Due probably to climatic conditions the coffee crop during the last fiscal year was about 37 per cent less than last year, a total of 32,144,283 pounds, valued at $5,049,283, being exported, as compared with 51,125,620 pounds, valued at $7,082,791 during 1914–15. There was, however, an increase of nearly 2 cents per pound in the price received over the previous year.

TABLE No. 12.—*Coffee exports.*

Fiscal year.	Pounds.	Value.	Average price.	Fiscal year.	Pounds.	Value.	Average price.
1901	12,157,240	$1,678,765	$0.137	1909	28,489,236	$3,715,744	$0.130
1902	26,906,399	3,195,662	.118	1910	45,209,792	5,669,602	.125
1903	35,207,139	3,970,574	.112	1911	33,937,021	4,992,779	.147
1904	34,329,972	3,903,257	.113	1912	40,146,365	6,754,913	.168
1905	16,849,739	2,141,009	.127	1913	49,774,197	8,511,316	.171
1906	28,290,322	3,481,102	.123	1914	50,211,947	8,193,544	.163
1907	38,756,750	4,693,004	.121	1915	51,125,620	7,082,791	.138
1908	35,256,489	4,304,609	.122	1916	32,144,283	5,049,283	.157

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During the fiscal year 1915–16 exportations of oranges were $422,616 greater than in 1914–15; fresh pineapples, $547,457 less; canned pineapples, $38,141 greater; and coconuts, grapefruit, and other fruits showed slight increases. The decline in pineapple exports was caused by unfortunate weather conditions. The total value of fruits exported during the year, however, shows a decrease of approximately $86,000.

TABLE NO. 13.—*Value of fruit exports.*

Fiscal year.	Oranges.	Pineapples.	Canned pine-apples.	Coconuts.	Grape fruit.	Other fruits.	Total.
1901	$84,475	(1)	(1)	$8,434	(1)	$16,992	$109,801
1902	51,364	(1)	(1)	12,720	(1)	9,898	73,982
1903	230,821	(1)	(1)	326	(1)	61,956	293,103
1904	352,646	(1)	(1)	(1)	(1)	81,214	433,860
1905	125,422	(1)	(1)	(1)	(1)	130,478	255,900
1906	295,633	$27,826	$42,186	129,793	(1)	7,420	502,858
1907	469,312	64,831	63,519	174,957	$7,586	3,737	783,942
1908	630,720	172,779	98,203	206,704	44,535	11,320	1,164,261
1909	401,912	442,780	117,830	204,498	76,310	18,154	1,261,484
1910	582,716	555,044	106,587	218,870	162,749	9,851	1,635,817
1911	703,969	641,291	149,744	258,168	309,698	11,123	2,073,993
1912	584,414	684,774	258,671	308,883	525,048	15,972	2,377,762
1913	740,091	1,142,348	147,564	353,690	726,811	10,415	3,120,919
1914	752,180	1,246,001	175,534	451,882	751,769	23,537	3,400,903
1915	378,181	1,723,863	84,735	410,378	834,440	9,560	3,441,157
1916	790,797	1,176,406	122,876	413,573	837,014	14,619	3,355,285

[1] Shipments included under "Other fruits."

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LEGISLATION.

The second session of the eighth legislative assembly convened on the 14th of February and adjourned on the 13th of April, 1916. There was a fine spirit of cooperation between the two houses, and the fruits of the session were 80 laws and 23 joint resolutions, all of which were duly approved by the governor. The excellent and important revenue legislation of this session is discussed in another part of this report under the head of insular government finance and will therefore only be mentioned here. But besides this several very important laws were passed. First in importance, perhaps, was the law for the relief of workmen injured in their trades or occupations which, after a prolonged effort lasting several years, was finally enacted at this session. In addition to this there were passed an act providing for the standardization of government supplies and the centralization of purchases by the government; an act providing for the recording of conditional sales of personal property, which was intended partially to supply the place of what is known as the chattel mortgage law of the various States of the Union; an act authorizing suits against the people of Porto Rico, drawn upon conservative lines, limited to future causes of action and providing a statute of limitations of from one to two years; an act to repress usury; an act to regulate motor vehicles; an act to provide amendments to the corporation law; a game law; an act authorizing the municipalities to issue bonds without the pledge of the credit of The People of Porto Rico; an act to provide additional revenues for The People of Porto Rico, providing for one-fourth of 1 per cent increase in the general property tax for one year and a reapportionment of the proceeds of

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the general property tax between the municipalities and the insular government; a joint resolution providing for a reassessment of real and personal property in Porto Rico, and for a reorganization of the board of review and equalization; an act authorizing the issuance of $2,000,000 of bonds for the construction of roads and bridges; and an act authorizing the issuance of $1,000,000 of bonds to provide capital for the Insular Bank of Porto Rico. There were also passed several amendments to the school law, to the Penal Code, and to the license laws, which, although of minor importance, will prove very useful.

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HEALTH AND SANITATION.

A reduction of over 30 per cent in the appropriations for work outside of the central offices necessitated a complete reorganization of the inspectors of the sanitation service during the year and the assignment to the municipal physicians of certain duties formerly performed by sanitation officers, which latter arrangement has not proven to be of much value to the service, the salaries allowed being small and the municipal physicians, for the most part, displaying little aptitude or interest in the work. This is largely due to the fact that they owe their position rather to political influence than to their professional qualifications.

The work of sanitary surveys of watersheds has been continued during the year, surveys having been made of the watersheds of Fajardo, Humacao, Cayey, and Arecibo. New waterworks systems have been completed during the year in a number of municipalities and the construction and reconstruction of others is in progress. Attention and study were also given the matter of pollution of water and its prevention, especially in localities where streams would be contaminated which are the source of water supply for the people. In a country so densely populated as Porto Rico this is a work of vital importance.

Two epidemics occurred during the year, one of dengue during the months of October and November, 1915, and one of smallpox in May, June, and July, 1916. Notwithstanding these epidemics, the mortality therefrom was not sufficient to affect the general mortality rate, and the increase in the rate of mortality from 19.7 in 1914–15 to 21.9 in 1915–16 is chargeable, first, to the reduction in appropriations for sanitary work, necessitating the decrease of personnel; second, to the increased prevalence and increased mortality from malaria and tuberculosis, due to the fact that no appropriation was made for a campaign against these diseases; and third, to the lack of proper nourishment which is reported to have existed in certain sections of the island and which has shown itself by the disproportionate increase in deaths in the very young and the very old.

Births have at the same time been reduced, being smaller than the preceding year by 1,357. The number of marriages increased 628 over the previous year. Deaths of children less than 1 year old increased 307 and of children between 1 and 2 years of age 414.

There have been 45,590 births during the year and 26,572 deaths. Marriages recorded numbered 14,212.

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CIVIL-SERVICE COMMISSION.

During the last fiscal year the civil-service commission received applications for examinations from 1,426 persons, an increase of 12 per cent over the previous year and more than during any preceding year since its organization. Of those applying, 1,132 were examined and 618, or 54.59 per cent, passed. The commission also examined 265 persons for the United States Civil Service Commission. Of these, 231 were examined for appointment in Porto Rico and 157, or 67.97 per cent, passed.

Appointments as a result of examination numbered 98, even fewer than last year, due to the fact that 65 of those employees separated by the abolishment of their positions on June 30, 1915, were provided for in the service either by immediate transfer or by later reinstatements, in preference to making appointments from among those qualifying in examinations during the year.

Of the 5,387 employees in the government service, 4,286 are in the unclassified service and 1,101 in the classified. With the exception of 323, all government employees during the year were natives of the island.

The violations of the civil-service act in the appointment of teachers, reported by the commission in previous years, were investigated during the past year and measures taken for remedying the evil, resulting in the conviction of several violators of the law.

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BOARD OF MEDICAL EXAMINERS.

In unswerving pursuance of its policy of such strict yet fair interpretation of the law governing it as will maintain above reproach the competence of the medical profession in Porto Rico, this board last year passed a number of resolutions whereby admission to examination for licenses to practice medicine in the island was refused to candidates from the medical school of one of the neighboring republics as not up to the required standard; special examinations and the issuance of special licenses to embalmers was denied, in accordance with an opinion of the attorney general, holding them not to be engaged in the practice of any branch of medicine; and the rule was adopted that osteopaths registered in Porto Rico are only authorized to practice their medical specialty and may in no instance prescribe drugs, as they are not required to undergo examination in materia medica and pharmaceutics. Sufficient evidence of the solid grounds on which the board bases all its decisions is afforded by a sentence which the supreme court of the island recently rendered, affirming the refusal of a lower court to grant a mandamus for examination for a license brought against the board by a graduate of one of the American medical schools not in good standing.

During the year just ended 32 applicants for licenses as general practitioners, 18 as minor surgeons, 26 as nurses, and 1 as optometrist, were examined. Of these, 29 physicians, 10 minor surgeons, 17 nurses, and 1 optometrist passed and were properly licensed upon payment of the requisite fees. A license was also issued to a doctor of the Porto Rico Regiment without examination, upon presentation of satisfactory documents and certificates.

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The board earnestly urges removal of the office of the examining boards from the quarters now occupied in the department of the secretary of Porto Rico to the quarters where their examinations are held. The present arrangement necessitates much going and coming to and from both places not conducive to the convenient or prompt transaction of their affairs. The permission of the secretary of Porto Rico for the clerk from his office staff in charge of this work to remain in the quarters in question during the regular government office hours, or the creation of a clerkship exclusively for the examining boards, would obviate the difficulty.

BOARD OF DENTAL EXAMINERS.

This board, during the fiscal year 1915–16, has continued its work of examining candidates for license to practice dental surgery in accordance with the law of March 9, 1905, has properly disposed of correspondence relating to the requirements for admission to examination, and has appeared in court in the prosecution of offenders against the law. Owing to the lack of facilities for the prosecution of offenders against the law, the board is considerably handicapped in its enforcement and reiterates its request for more thorough cooperation on the part of the insular police.

BOARD OF PHARMACY.

When this board rendered its last report it had just been reorganized and consequently had merely outlined the policy it had set for itself, namely, the rehabilitation of the pharmaceutical profession in Porto Rico.

All the work of the board during the past year has been directed to that end, with gratifying success. Thus, on the strength of the powers conferred upon it by law and of an opinion of the attorney general, the board adopted a resolution declaring null and void examinations wholly or partly passed by candidates who, without meeting the requirements of law, had been allowed to take them conditionally. This resolution automatically carried denial of applications to the new board for examination under similar circumstances, either by new aspirants or by candidates who had been so examined; denial of applications for the issuance of linceses on examinations previously so passed; and the moral obligation upon the board to work for the cancellation of licenses unlawfully issued. This obligation is being discharged as fast as the work of reorganization has permitted, the papers in connection with 48 licenses improperly issued having so far been sent to the attorney general for action. The validity of the resolution in question has already been tested and sustained in the courts, including the supreme court of Porto Rico.

Seventeen candidates for druggist's license and 1 applicant for examination in some of the courses leading thereto were examined during the year. Of the candidates for license 12 passed. Licenses to the number of 11 were issued during the year, in some instances to persons who had been examined by the old board in accordance with all legal requirements.

The board recommends the enactment by the coming legislative assembly of a bill making pertinent amendments and additions to

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the present law, which failed of passage at the last session, and urges the desirability of removing its office to the quarters where its business, as well as that of the allied boards, could be more expeditiously dispatched.

BOARD OF TRUSTEES OF THE UNIVERSITY OF PORTO RICO.

Owing to a reduction in the appropriation for the fiscal year 1915–16, the work in the departments of the university was somewhat reduced, the faculty being less by 6 teachers than during the preceding year. An instructor in the college of law, an instructor in agriculture, and an assistant in the practice school were, however, provided later in the year. The number of students was 405 less than during the previous year, on account of the necessity for limiting the enrollment to the number that could be handled with success, although the increased entrance requirements in the normal department and the college of law account to a certain extent for this decrease.

A special course for the preparation of rural teachers has been adopted in the normal school and will become effective next year, special features of which are work in agriculture, manual training or home economics, elementary science, rural school management, rural school methods, and rural hygiene and sanitation.

Steady progress has been made in the college of agriculture and mechanic arts at Mayaguez. The enrollment was about the same as for the preceding year. The outlook for the coming year is very promising.

The report of the board of trustees of the university of Porto Rico will be found annexed to the report of the commissioner of education herewith.

INSULAR LIBRARY.

The new Carnegie Library building was completed during the year and opened with appropriate public ceremonies on July 27. The building cost $100,000 and was generously donated to the people of Porto Rico by the distinguished American philanthropist whose name it bears, as the result of a personal interview between him and the present governor in February, 1914. It is a beautiful, substantial, and commodious building, admirably adapted to the uses for which it was constructed. It is conveniently located close by Fort San Cristóbal, upon an appropriate and picturesque site. It is furnished and equipped with every modern convenience and will be through the years a permanent and noble home for the free public library of the people of Porto Rico. During the past year the library staff has carried on its regular work, and in addition has rearranged its methods and management with a view to entering its new and enlarged quarters. For the coming year it has a larger appropriation, which will be used for making much needed additions not only to its books but also to its staff of assistants for more efficient administration.

During the year the total accessions were 1,925 books, 1,368 of which were purchased and 557 were the gifts of friends. Of the total number 1,429 were in English and 496 in Spanish.

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BOARD OF COMMISSIONERS OF AGRICULTURE.

The activities of this board for the betterment of agriculture in Porto Rico were continued during the year.

The work of the insular experiment station has been extended, and a number of bulletins have been issued on important subjects. Many foreign inquiries for bulletins are being received, and the station is on the mailing list of practically all tropical stations.

In addition to the acreage under cane, plantings of various fruits and vegetables have been made and are under observation.

Trips of inspection have been made by the station staff to practically all the centrals of the island and many of the cane growers, as well as to a large number of fruit growers, and studies made of varieties grown, cultivation practices, fungus diseases, and insect pests. Improved agricultural methods have been advocated and control measures recommended for insects and diseases.

The regulations regarding the inspection and fumigation of plants to prevent the introduction into Porto Rico of plant diseases and noxious insects have been rigorously enforced.

The San Juan office of the board, which acts as a bureau of information for the Government, has received during the year numerous inquiries regarding agriculture, business opportunities, manufacturing enterprises, etc., all of which have been answered after painstaking investigation. The importance of this work can not be overestimated and the board should be provided with facilities which will enable it to give promptly full information regarding opportunities in Porto Rico and to encourage to the fullest extent the development of new and the extension of old enterprises in the island.

Near the close of the year 1914 it was determined to continue the effort to secure a market for Porto Rican coffee in the western part of the United States through an exhibit at the Panama-Pacific International Exposition at San Francisco, Cal., and space was accordingly reserved and an exhibit maintained in one of the exhibit palaces during the entire period of the exposition, February 20 to December 4, 1915. The conditions at the outset were promising, but the short crop unfortunately defeated to a certain extent the object of the exhibit, making it inexpedient for the growers to furnish coffee for samples and demonstration or to make shipments on consignment to the western market. The exhibit endeavored, however, to obtain the best possible results with the means at hand, and installed in its 2,000 square feet of floor space displays of such samples of coffee as it was possible to obtain; also of cacao, coconuts, coconut fiber, pottery, cigars, and straw hats. Visitors were served with small cups of Porto Rican coffee at tables in one end of the exhibit space and thoroughly informed as to its qualities. They were also given a general description of the island, its climate, people, customs, products, etc.; in short, a brief statement, in a personal way, of such facts as would create an interest in the island. The creation of an interest in coffee was, however, the first consideration, and the sales of our coffee on the Pacific coast by the only company handling it there, operating a chain of stores throughout the United States, and with which the exhibit cooperated closely, were greatly increased, the cause being directly traceable to the exhibit. The names of several

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thousand visitors who expressed a desire to use Porto Rican coffee were taken and are now in the hands of the board of commissioners of agriculture.

Many roasters, brokers, and wholesale and retail dealers were interested, but, as above stated, the lack of samples and coffee on the market prevented the making of arrangements with them for handling it.

At the time of making awards on coffee the few samples furnished the exhibit had not yet arrived and it was, therefore, impossible to furnish the jury with more than samples from the few sacks which had been received for demonstration purposes. Under the circumstances the award obtained (gold medal on Porto Rican coffee) was all that could be expected, as other coffee-producing countries had specially selected samples of all grades of coffee produced in their respective countries to submit to the jury, and by means of the numerous samples of coffee on exhibit by them were able to create a more favorable impression on the jury. That Porto Rican coffee was not awarded the grand prize or medal of honor is doubtless due not to any inferiority in quality as compared with the coffee securing those awards but to the unfavorable conditions attending its presentation to the jury of award. As stated above, it was exceedingly unfortunate for Porto Rico that at the very time the exhibit was endeavoring to do its work the production of coffee should have been reduced from 51,000,000 to 32,000,000 pounds.

COMMISSION ON UNIFORM LEGISLATION.

This board, which was organized under a law enacted by the insular legislature in 1910, for the purpose of securing for the island participation in the movement in the States and Territories for uniform legislation on matters of general interest, during the year 1915–16 continued its endeavors to obtain the passage of uniform laws of a mercantile nature.

To this end, bills for uniform acts on negotiable instruments and on corporation stock transfers were introduced at the last session of the legislature. These bills, however, could not be put through then, as a number of the banking institutions of the island, at the hearing held in connection therewith, asked for more time to study them. It is expected that they will be taken up again at the next session of the legislative assembly.

In addition to the foregoing, the commission reiterates its recommendation for continued effort to insure the enactment of uniform laws on sales, warehouse receipts, bills of lading, marriages in other States or countries, testamentary evidence, and the flag. In adopting this uniform legislation Porto Rico would be but keeping in line with the most advanced States and countries. As regards the uniform law on land-titles registration, which is based on the Torrens system, and the wisdom of the adoption of which in Porto Rico is in controversy, the board urges careful consideration and study thereof before deciding one way or the other.

The board was represented at the last national annual conference, held at Salt Lake City, Utah, and expected to be present also at the conference to be held in August, 1916, at Chicago, Ill.

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IRRIGATION COMMISSION.

Since the formation of the temporary irrigation district on September 1, 1914, this commission has been actively engaged in gathering and critically studying such comprehensive information as will enable it in due time to determine upon a profitable and successful permanent district.

If anything had been wanting to demonstrate the invaluable aid of the irrigation system to the district involved, the prolonged and unparalleled drought of the past six months supplied the missing evidence. Though the reservoirs ran low and at times could not supply all the water due to the lands dependent upon them, there was yet no impairment to speak of to the crops. The results under such unusual conditions have, indeed, been so satisfactory that the commission expects to be able to bring about 2,000 additional acres under irrigation when the permanent district is formed. In this way practically all the lands profitably irrigable in the eastern division will then be receiving the benefit of irrigation. In the western division, on the other hand, in the neighborhood of 9,000 acres of excellent land, which could unaided bear the burden of any work designed to afford irrigation, will still be left without such relief. The commission, therefore, emphasizes the importance of some project to increase the water supply for that division in particular.

One of the most difficult tasks confronting the commission during the year was the question of surplus waters from the irrigation system, the sale of which had been a source of complaint. A number of schemes for the regulation of the sale of such waters were submitted by the commissioner of the interior for consideration by the commission. Three public hearings on the matter were held, and after long and careful study of the projects received from various quarters, including members of the commission itself, one was accepted and submitted for approval by the commissioner of the interior and the executive council, as best harmonizing the interests of the people of Porto Rico and the landholders. In February, 1916, the executive council finally approved rules and regulations for the sale of surplus waters from the irrigation system.

INSULAR GOVERNMENT FINANCE.

The return of prosperity made it possible, for the first time since the crisis of 1913, to consider the question of increasing the revenues of the insular government by some kind of additional local taxation. It will be remembered that when the present governor assumed the administration in the autumn of 1913, he found a budget in operation in which the expenditures exceeded the revenues for the year 1913–14 by two or three millions of dollars. The economic condition at that time was such that increased taxation could not be thought of, so that there was no safe course open but the most rigid and severe economy. This crisis lasted for two years, and while the most drastic economies were made in all branches of the public service it was impossible to avoid the practical exhaustion of the balance of reserve in the treasury which had been accumulated for just such a contingency. This rigid

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economy had of necessity to go so far as to stop all progress and to cripple the work of the most important constructive departments of the insular government. With the return of prosperity, however, it was possible and proper that local taxation be increased and the revenues of the government be restored to an amount sufficient to resume progress, especially in the great departments of education, sanitation, and public improvements. When the legislature assembled in February, 1916, the governor made a strong recommendation to it that the insular revenues be increased, and suggested that this increase be secured by heavier taxation on the property of the island. After very careful consideration and discussion the legislature followed in the main these recommendations and passed a law which provided for an increase in the revenues in the following manner:

(1) For the fiscal year 1916–17 the general property tax is increased by one-fourth of 1 per cent, all of the increase to go into the insular treasury. This will add about $450,000 to the revenues for that year from the property tax.

(2) For future years, beginning with 1917–18, the increase is to be secured by a complete revision of the assessment of all the property of the island, bringing the assessments up in harmony with the rise in market values in recent years and equalizing more equitably assessments as between the various classes of property. This work of reassessment is already well under way and will undoubtedly result, as was expected, in a large increase of insular revenues. A minor enactment, having largely the same end in view, was a complete revision of the law governing and taxing motor vehicles, which will add some $40,000 to the revenue from this source.

In harmony with its good work for the increase of the revenues the legislature increased the appropriations for the year 1916–17 by about $500,000 over the budget for the previous year, the greater part of the increase being applied to roads and schools. There were added to the fund for the maintenance of roads $210,000 and for the school fund more than $155,000 for the increase of rural schools. The total appropriations for the year 1916–17 aggregated about $250,000 more than the estimated receipts for that year. This rather optimistic proceeding was indulged in partly because of the fact that the drastic economies of the two previous years had gone so far as to produce very serious effects, as already stated, in the two great departments of education and public improvements, and partly because of the hope that the new organic act pending before Congress and carrying with it a substantial increase of insular revenues would be passed before the end of the year; partly also from the belief that returning properity would increase the ordinary receipts. Should both of the above expectations fail of realization, the deficit can be easily met by a temporary loan until the receipts from the increased assessments for the following year shall have become available.

In close connection with its revenue measures above described the legislature authorized two additional issues of insular bonds, as follows:

(1) An issue of $2,000,000 of public-improvement bonds for the construction of those roads included in the general plan of insular roads for the whole island. This issue was connected with the reassessment project so as to secure the cordial cooperation of all the property

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owners, especially the owners of coffee properties in the interior who had not as yet secured their fair share of insular roads. This issue of bonds is entirely prudent, because the increase of assessments will not only produce a large increase of revenues, but will also add several millions of dollars to the borrowing capacity of the island besides increasing the proceeds of the permanent tax of one-tenth of 1 per cent for sinking fund and interest charges on the public indebtedness of the island.

(2) An issue of $1,000,000 of insular bonds was authorized for the purpose of founding an agricultural bank. This issue was made contingent upon the condition of the treasury after the other financial measures shall have been completed. It is earnestly hoped that the organization of such a bank may become feasible in the near future, for nothing could be more advantageous to the smaller landowners and farmers of Porto Rico than some method of securing loans at low rates of interest and for long periods upon the security of their lands.

In the summary of the transactions of the insular treasury printed below it will be noted that the receipts from customs fell to less than $300,000, a decline of $55,000 below the low level of the previous year, when it was supposed to have reached the bottom. On the other hand, the internal revenue receipts showed a tendency before the end of the year to pick up a little in response to the changed economic conditions.

It is now estimated with confidence that the receipts from the former sources of revenue will not decline further in the immediate future, and the financial legislation above described represents the best efforts of the local legislature to increase them from local taxation, as was foreshadowed in this part of the annual report for last year. It does not now seem possible to do more in this direction from local sources, and yet the present revenues will not continue to be sufficient to meet the growing needs of this populous island. For further increase hope must rest upon the generosity of Congress as embodied in the new organic act now before the United States Senate.

Summary of the transactions of the insular treasury for the fiscal year 1915-16.

Customs receipts during the year amounted to	$295,500.00
Internal-revenue receipts accruing to the insular government, made up of $17,390.52 from inheritance tax, $184,423.37 from property tax, $946,040.18 from tobacco tax, $136,353.26 from income tax, $1.25 from industrial and commercial licenses, $240,060.02 from license taxes, $1,110,423.54 from tax on spirits and liquors, and $489,183.44 from other taxes, aggregated	3,123,875.58
Receipts from fees, fines, and other miscellaneous sources amounted to	783,558.80
Making the total actual revenue collected on account of the fiscal year 1915-16	4,202,934.38
There also reverted to and were paid into the treasury on account of general fund, representing repayment of loans to municipalities and school boards, repayments of unexpended funds to appropriations, sales refunds from the working capital account of the Bureau of Supplies, Printing, and Transportation, and various other minor transfers, aggregating	1,158,446.52
Making the total insular treasury receipts on account of general funds available for expenditure under appropriations	5,361,380.90

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Receipts on account of trust funds, representing $1,892,433.64 in property and industrial and commercial license taxes on account of municipalities and school boards, $397,934.22 from sales of irrigation bonds, interest on balances, etc., $182,591.10 in bond-redemption tax, and $1,308,012.24 from miscellaneous sources and transfers, amounted to		$3,780,971.20
Bringing the total receipts of the treasury for the year up to		9,142,352.10
This amount, added to the cash balance in the treasury at the close of 1914–15		2,672,495.78
Made the total to be accounted for		11,814,847.88
On account of appropriations by the legislative assembly there were expended during the fiscal year:		
For legislative expenses	$71,558.23	
For all services, public works, improvements, and expenses incurred by and effected through the various branches of the executive department of the insular government	3,508,469.10	
For the support of the judiciary	460,779.08	
For miscellaneous purposes	209,986.07	
Or a total of	4,250,792.48	
Further disposition of available funds in loans to municipalities and school boards, transfers and repayments to appropriations, including repayable advances to the working capital fund of the Bureau of Supplies, Printing, and Transportation, and municipal and school-board bonds redeemed and sold, amounting to	1,526,131.86	
Brought the total amount expended and disposed of up to		5,776,924.34
Reducing the amount at the disposal of the government to		6,037,923.54
Disposition of trust funds, represented by payments to municipalities and school boards on account of taxes collected for them of $1,862,517.65; expenditures from irrigation fund, $640,878.55; road-bond fund, $72.76; other expenditures, repayments, and transfers, $632,806.45; in all aggregating		3,136,275.41
Reduced the amount to the credit of the government at the end of the year in available resources to		2,901,648.13
Segregating from this the amount representing funds held in trust for specific purposes		2,741,881.03
There remains available for expenditure under legislative appropriation		159,767.10

OUTSTANDING BONDED INDEBTEDNESS.

The total bonded indebtedness of the insular government was increased during the year by $700,000, as follows: Three hundred thousand dollars of refunding bonds used on account of the municipalities and $400,000 of irrigation bonds for the purpose of meeting interest and principal obligations of former irrigation bonds and the maintenance and operation of the irrigation system.

During the same period $200,000 worth of bonds were redeemed, of which $150,000 were irrigation bonds and $50,000 road bonds.

This brings the total outstanding bonded indebtedness on June 30, 1916, to $8,480,000.

The limit of indebtedness under the Foraker Act on the basis of present assessed valuation is somewhat in excess of $12,000,000, so that the above amount of bonded indebtedness is still well within the limit. However, an analysis of the above bonded indebtedness will show that nearly three-fourths of the total amount is not in

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reality a debt against the revenues and property of the insular government, because it is amply secured by other property or revenue, which will secure its payment without any burden upon the revenues of the insular government. This will be made clear by the following analyzed statement:

The entire bonded indebtedness outstanding on June 30, 1916		$8,480,000
Irrigation bonds secured by special tax upon the lands irrigated	$5,050,000	
Bonds secured by collateral bonds of municipalities and school boards	955,000	
Bonds secured by the San Juan Harbor dues	500,000	
Total		6,505,000
Balance		1,975,000

Subtracting, therefore, from the total outstanding indebtedness all those forms of bonds for which the insular government holds collateral security sufficient to insure their payment, there remains a balance of only $1,975,000 for which the insular government is alone responsible, and funds for the payment of which must be provided out of the general revenues.

MUNICIPALITIES.

The insular government has continued during the past year, though with great caution and conservatism, its policy of aiding the municipalities to secure waterworks and sewer systems through the medium of loans guaranteed by the insular government. Owing to the financial difficulities and the approach of the insular indebtedness to the maximum permitted by the organic act, the policy of carefully scrutinizing these loans with a view to restricting them to the most necessary cases was made absolutely essential. The policy, however, has not been abandoned and with its aid for other towns, in addition to the 30 which already have them, have installed systems of water supply; and there are now in all 7 towns and cities that have sewage systems, 3 having been added to the list during the past year.

The cities and towns are eagerly availing themselves of the opportunity afforded them through the aid of the insular government of securing for their people the benefits of these modern improvements. In addition to those that have already built waterworks and sewer systems, more than a score have had projects prepared and applied to the executive council for loans to secure one or the other of these improvements, but the council prudently hesitates out of regard to the credit of the insular government.

It would be very unfortunate if the insular government should find it necessary to abandon this policy of aiding the municipalities in this most salutary and desirable form of city development; and it is to be hoped that the new organic act containing a provision for the exemption of this form of public indebtedness from the computation of the public debt with reference to the debt limit will speedily be passed so that the policy above referred to may be continued indefinitely.

In the financial legislation enacted by the legislative assembly at its last session was a provision whereby the share of the municipalities in the proceeds of the property tax is limited for the future to the amount which they will receive under the present law for the fiscal year 1916–17. This provision is of course unscientific, because as the

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municipalities grow in population and in other ways their needs for revenues will of course grow also. However, the limitation of their revenues to a fixed sum is indispensable at the present moment, and besides there is a growing conviction that the municipalities, many of them, are not making a judicious use of the revenues which they now have. This is no doubt due to the fact that the system of municipal government which has been given to the municipalities by the legislature is not well adapted to their needs. The numerous small towns are attempting to operate a system of government sufficiently complicated and expensive for a large city. The legislature, therefore, provided for a commission to make a careful study of the system of municipal government as a whole and to make a report to the governor suggesting changes and improvements in time for submission to the legislature at its next session. Out of this it is hoped will grow a new law for the governing of the municipalities better adapted to the conditions and the present development of the municipalities of Porto Rico.

EDUCATION.

The total enrollment in all public schools during the fiscal year 1915–16 was 151,562, of whom 1,050 were enrolled in the University of Porto Rico and 526 in charitable and correctional institutions. In addition to the pupils enrolled in public schools 5,832 children attended private schools and more than 400 Porto Rican students attended school in the United States. One hundred and seventy-two Americans and 2,296 Porto Rican teachers taught in the 2,546 classrooms located in the 1,506 different school buildings. These buildings range in character from straw-covered shacks in the remote rural barrios to the thoroughly modern concrete structures in the larger towns and cities. During the past year special attention has been given to rural education and a campaign inaugurated for the purpose of arousing interest and extending the functions of the rural school. Supervisors were directed to devote most of their time and efforts to the rural schools and the rural teachers were enlisted in the campaign, the purpose of which is to reduce illiteracy, to arouse the interest of the rural population in rural education, to help the country people to improve living conditions, to put them in touch with the world, to make the rural school the social center of the barrio, and to improve rural home and community sanitation.

Through the influence of this campaign evening classes for adults have been established, parent organizations and meetings and rural conferences held, reading and library facilities provided, instruction given in gardening and rural industries and visits made to the homes of parents. The results of this campaign have been highly satisfactory, and its continuance will be a helpful influence to the people who most need help, the dwellers in rural communities.

An effort is being made by the department to effect a consolidation of rural schools wherever practicable in order to facilitate the erection of better school buildings and the more efficient instruction of rural pupils.

Teachers' meetings have been held in all districts for the purpose of discussing teaching methods.

The encouragement of rural industries is resulting in the betterment of numerous families in a number of barrios, and the future promises

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results that will be bounded only by the ability of the instructors to develop skill in their students. This movement to provide employment for the large number of unemployed women in Porto Rico is of great importance and should receive all possible assistance from every branch of the government, both insular and municipal.

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LABOR, CHARITIES, AND CORRECTION.

LABOR.

The bureau of labor continued throughout the year its activities for the betterment of the conditions of the laboring people of Porto Rico. That the results were not commensurate with the efforts made is not to be charged against the efficiency or the sincerity of those who are making these efforts but to the almost insuperable obstacles involved in the situation itself. The large number of unskilled laborers in Porto Rico relative to opportunities for employment, the general character and helplessness of these laborers in general, their ignorance and poverty, their improvidence and low standards of living—these are the fundamentals of the labor situation, as well as the social organization and traditions which date back two or three centuries. These conditions can be modified only gradually and by persistent, untiring effort.

During the past year progress has been undoubtedly made in various directions, and the bureau of labor through its different lines of work has contributed largely to this progress. The laws for the protection of laborers have been more generally enforced, some helpful legislation has been secured and above all there are in evidence some indications of rising standards of intelligence and responsibility among the workers.

During the year there was another strike movement among the agricultural workers in the cane fields. This movement originated in the eastern part of the island sometime in January and spread over the sugar-producing districts generally, especially on the north coast. Its purpose was to try to secure for the workers in the fields higher wages and shorter hours of labor as their fair share of the extraordinary prosperity of the sugar industry. The movement involved from first to last some 30,000 to 40,000 laborers, and achieved at least a part of its purpose both as to wages and the establishment of a standard day's work.

In general this strike movement was far more peaceful than that of the previous year, and was more intelligently managed by the laborers. Although there were two or three regrettable clashes between the strikers and the police, there was in general a much better understanding between all the parties concerned than formerly.

When one considers the number of laborers involved in this strike and their general character as to education and intelligence, the results will seem very creditable.

In addition to the law providing compensation for workmen injured in their occupations, the law protecting laborers from unscrupulous contractors who deprive them of their wages through fraud was amended and greatly strengthened.

The free employment agency maintained by the bureau continued its work with moderate success.

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Public Works—Roads and Buildings.

ROADS.

The total expenditure for the construction of roads and bridges during the year was $145,826.60 and for the maintenance of roads and bridges already built $303,389.06. During the year 12.6 kilometers of new road were built, bringing the total of completed macadamized insular government roads on the island up to 1,139.5 kilometers on June 30, 1916.

One of the most important features of the work during the year has been the construction of two reinforced concrete bridges over the mouth of the Arecibo River at Arecibo for the purpose of closing the break in road No. 2, which joins San Juan and Ponce and runs along the northern and western shores of the island, which work has been actively pushed and is now nearing completion. The road from Martin Peña to Bayamon will soon be complete. All grading has been done, the masonry structures have been built and macadamizing is proceeding rapidly.

Bridges over the Humacao River at Humacao, over the Tallaboa River at Peñuelas, over the Marueños and Canas Rivers at Ponce, and over Frailes Creek at Guaynabo, all of which were badly needed, were completed during the year. The two very necessary bridges over the Portugues River, just outside of Ponce, have been contracted for, and their construction is progressing satisfactorily.

The average cost of maintenance of the entire system of insular roads for the fiscal year 1915–16 was $256.61 per kilometer, which is a slight reduction of $7.25 per kilometer from that of the previous year. This simply represents the efforts of the department to spread the funds for maintenance over a larger number of kilometers.

At the last session of the legislative assembly a bond issue of $2,000,000 for the construction of roads and bridges was authorized, the selection of the improvements to be undertaken being left to the economy commission. There have been included in this list far more roads than can be built with the proceeds of this bond sale, and a more rigorous selection will be necessary.

BUILDINGS.

The most important addition to the public buildings of the island during the past year was the Carnegie Library in the city of San Juan, which is more fully treated of in another part of this report.

In this connection it is a great pleasure to note that a patriotic local philanthropist, Dr. Santiago Veve, of Fajardo, generously donated $25,000 for the construction and equipment of three school buildings in three of the communities in his own district. This is a noble example, which I hope will not be lost upon patriotic Porto Ricans of large wealth, for the need is great.

High schools at Humacao and Arecibo were completed, and the greater part of the construction of the high-school building at Mayaguez was finished. Several important graded schools were completed, and work on others is progressing rapidly.

An act passed at the last session of the legislature provides for the construction of a capitol whenever the cost of it can be met by the sale of certain insular government buildings and lands.

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PUBLIC LANDS.

The division of public lands of the department of the interior surveyed during the year 5,544.26 cuerdas of Government land and 5,647.45 cuerdas of private property, the cost of survey of Government lands having averaged 98 cents per acre, due to the fact that titles of other properties bordering on that to be surveyed, amounting to 5,647.45 cuerdas, had to be investigated to determine the correct boundaries.

The survey and plotting of the land comprised in the Luquillo National Forest was completed during the year. It is important that appropriations for this work of survey be increased so that the survey and plotting of the public lands may be finished in about five years.

MUNICIPAL IMPROVEMENTS.

Few new works of importance were inaugurated by the municipalities during the fiscal year, owing to their inability to secure loans. The waterworks systems of the municipalities of Aguadilla, Comerio, Gurabo, Barranquitas, and Lares were completed during the year, as well as sewerage systems at Aguadilla, Lares, and Caguas, and repairs and extensions were made to other water and sewer systems.

INSULAR TELEGRAPH.

The insular telegraph at the close of the year had in operation 14 telegraph lines, with ground circuits of 746.26 miles; 9 telephone lines, with ground circuits of 104.37 miles; and 8 telephone lines, metallic circuit, of 493.74 miles, making a total of 1,344.37 miles. The income during the last fiscal year showed a profit above expenditures, which included considerable improvements and extensions. There was, however, a decrease in cash receipts as compared with the preceding year, due in a large measure to the extension of the lines of the Porto Rico Telephone Co. and the construction of the telegraph line of the French Cable Co. between San Juan and Mayaguez. The total number of messages transmitted was 189,575. Some important recommendations are made by the commissioner of the interior for the safeguarding and extension in the future of this important public service.

HARBORS AND DOCKS.

The collections for harbor dues at all ports of the island show an increase of $484.97 over the fiscal year 1914–15, due to the increased movement at the ports of Guanica and Ponce.

The new coal dock at San Juan, operated by private capital, is attracting quite a number of vessels to this harbor for coaling. Such vessels do not pay harbor dues, but the encouragement of the establishment of a schedule by lines operating in these waters to include San Juan as a coaling station is of great importance and should result in bringing to the island other business. One line operating steamers between Brazil and New York, which at first coaled only occasionally at this port, now includes San Juan in its schedule and has arranged for the handling of passengers between San Juan and Brazilian ports.

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The new bulkhead and shed, making available 900 feet of dock front in the harbor of San Juan, will assist materially in the handling of cargo at this port. This work is progressing satisfactorily and will soon be completed.

AUTOMOBILE LICENSES.

On June 30, 1916, there were in force 2,171 automobile licenses, 109 truck licenses, 219 motorcycle licenses, and 5,194 chauffeur licenses. Under the provisions of an act passed by the last session of the legislature, the regulation of motor vehicles in Porto Rico will be immensely improved during the coming fiscal year, and, in addition, the revenues from this source will be largely increased. This subject is fully explained in the report of the commissioner of the interior herewith.

IRRIGATION SYSTEM.

The irrigation system is an assured success, and with proper management will pay for itself. A prolonged and extraordinary drought over the south side of the island during the last six months of the year fully tested and proved the value of the irrigation service. It is largely due to this service that the increase in the production of sugar was so great the past year. As the construction work has practically been completed, the personnel in the irrigation service has gradually been reduced, until at present it is almost on a maintenance basis. It is thought that when finally reduced to this basis the cost of operation will not exceed $2 per acre of land included in the district.

At its last session the legislature authorized investigations looking to the extension of the irrigation works to the westward, so as to include in their benefits some 9,000 acres of land that can not now be reached.

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ECONOMY COMMISSION.

In last year's annual report it was stated that the economy commission would likely "be discontinued at the close of the next year, because, in its own opinion, it has, in the main, accomplished its task and will not be able to suggest further reductions in the expenses of the insular government without serious loss of efficiency." It was found convenient, however, to continue this body for one year more for two or three reasons. First, they had already in accordance with the recommendations of the governor taken up a serious study of the entire municipal system of government with a view of suggesting a simpler, more economical, and efficient form of government especially for the smaller municipalities. This work they had not completed, and as this matter had become urgent from every point of view the economy commission were given until the end of the calendar year to finish their studies and make their report to the governor for submission to the next legislature.

Second, in the law providing for the revision of the assessment of property, the governor was authorized to appoint on the board of review and equalization two members of the economy commission from each house of the legislature. It was deemed important and

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helpful in this way to make this board so thoroughly representative of the whole island as to disarm in advance any hostile criticism that might arise of the work of reassessment. In addition to these two matters of special importance, the economy commission proved again helpful in the preparation and passage of the last budget by aiding in the adjustment of divergent views between the two houses as to the relative necessity of various appropriations. This body remains therefore for another year, though with changed purposes, rather as a standing commission of the two houses of the legislature.

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CONCLUSION.

It is a genuine pleasure to record as I look back upon the years of stress and strain that all of the officials of the government accepted with courage and good cheer the sacrifices that they were called upon to make and did their work with unabated energy and efficiency. It is indeed true that in some of the departments the general character of the work has improved in efficiency in spite of shortened personnel and reduced salaries, and in all of them the force has been faithful to the service and loyal to the government.

I would respectfully and yet urgently renew two of the recommendations made in my last report which have not yet received the favorable attention of Congress. First, the new organic act for Porto Rico which has been so often before Congress and so often delayed and put aside. Every local consideration calls insistently for the passage of this act now. Congress has not intentionally or consciously neglected the little island. It is a case of a great people becoming so absorbed in matters of the most vital and paramount importance to themselves that they overlooked the most necessary and urgent matters affecting the interests of a small country whose destinies have been committed to their care. It is the plain duty of our Congress to revise the organic act at the earliest possible moment.

Secondly, I would renew also my recommendation that the appropriation for the dredging of San Juan Harbor by the Federal Government in cooperation with the insular government be promptly passed. This matter has already been approved by the Engineers of the War Department and the Secretary of War, and the cooperative plan involved in it insures the reimbursement of the Federal Treasury for more than two-thirds of the total expense from the proceeds of the sale or lease of the lands reclaimed as a by-product of the dredging process. During the past two years the port of San Juan has maintained its commerce both as regards the number and the tonnage of vessels entering it in spite of the withdrawal of a large number of German and other vessels caused by the great European war. This was due largely to the bulkhead and other improvements made in the harbor by the insular government and to the great improvements made in the coaling facilities by a private company. When the war is over and the shipping conditions return to the normal, there will come a great opportunity to the port, provided only proper preparation can be made to reap the natural advantages due to its location. The proposed dredging project will double the deep-water area of the bay, removing shoals and placing the material on the swamps which surround the harbor. In addition, some improvement would be made to the entrance. This is truly a national enterprise of great

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importance. There are no political considerations—no "pork," so called, involved in it. It is in every way worthy of the serious attention of the national Congress.

Very respectfully, your obedient servant,

ARTHUR YAGER,
Governor of Porto Rico.

The SECRETARY OF WAR,
Washington, D. C.

REPORT OF THE GOVERNOR OF THE PANAMA CANAL.

THE PANAMA CANAL,
OFFICE OF THE GOVERNOR,
Balboa Heights, Canal Zone, September 11, 1916.

SIR: I have the honor to submit the annual report covering the construction, operation, maintenance, sanitation, and protection of The Panama Canal for the fiscal year ended June 30, 1916.

CONSTRUCTION.

The department of operation and maintenance, under which all construction work was done, continued in charge of the Governor, who was assisted in the administration of the department by the engineer of maintenance, Lieut. Col. Chester Harding, United States Army, and by the marine superintendent, Capt. Hugh Rodman, United States Navy, until October 1, 1915, when he was succeeded by Commander H. I. Cone, United States Navy.

The principal construction work carried on during the year was done in connection with the terminals, and the erection of buildings for various purposes; the electrical, municipal, and dredging divisions did a large amount of construction in connection with both the terminals and the new buildings.

DIVISION OF TERMINAL CONSTRUCTION.

The division of terminal construction, under Rear Admiral H. H. Rousseau, United States Navy, was charged with the design and construction of dry docks, shops, coal and fuel oil plants, floating cranes, docks, and other terminal facilities; the inspection of machinery and appliances under contract pertaining to these various objects; and the construction of the east breakwater of Colon Harbor. On account of the practical completion of the work, this division was abolished effective May 31, 1916, and since that date the remaining construction and inspection forces were placed under the engineer of maintenance. Admiral H. H. Rousseau was relieved from duty with The Panama Canal effective July 7, 1916.

Dry docks.—The construction of the dry docks was undertaken, with the authority of Congress, when it became apparent that, because of the lower unit costs secured during the construction of the canal than were used in the preparation of the estimates, there would be sufficient money for the purpose. Following the views advanced by the Navy Department, two dry docks were contemplated, located on

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the Pacific side—Dry Dock No. 1 was designed and built of sufficient size to admit any vessel that can use the locks (the dimensions are given in detail in the annual report for 1915)—and Dry Dock No. 2, 350 feet long and 59 feet wide, for smaller craft. As the construction was authorized in view of the possible savings, when it became evident that both dry docks could not be built and the canal completed construction on No. 2 was stopped, but it was left in such shape that it can be readily completed at any time should it be deemed necessary.

Early in the fiscal year the excavation and cleaning of the rock in preparing foundations for Dry Dock No. 1 were completed. Most of the mass concrete had been placed by the end of the last fiscal year; that remaining to be done was at the entrance on either side, the pump well, and the opening in the wall which was left to accommodate the mixing plant. The reinforced concrete still to be placed was for the several machine rooms, the copings, drains, gutters, numerous small lots around the metal parts and the coping lever. The permanent mixing plant used in the construction of the dry dock remained in service until the latter part of August, 1915, when it was removed and the mixers mounted on cars fitted with towers and chutes for delivering the concrete into forms. The trestle leading into the dry dock was dismantled in December, 1915. The floor was finished in January, 1916, with the exception of the traverse slots for the keel and bilge blocks, which were subsequently cut in the concrete. There were placed 12,897 cubic yards of mass concrete and 17,757 cubic yards of reinforced concrete, in which 1,043,366 pounds of reinforcing steel and 1,122,236 pounds of fixed steel were embedded. The average cost of the mass concrete was $5.5882 per cubic yard and of the reinforced concrete $7.7338 per cubic yard. The low cost compared with concrete placed in the locks is due to the use of sand and gravel secured from the Chagres River, not accessible until the lake reached its full height.

The granite blocks forming the miter sill and the quoin posts were set during the year; the granite seat for the floating caisson was also put in place and finished off. Great care was exercised in dressing down for final surfaces, and special steel templates were prepared for the purpose. When finished, the maximum variation of the granite sills from a true plane was one thirty-second of an inch. Granite amounting to 425.41 cubic yards was set, at a total cost of $847.87 per cubic yard.

The miter gates to the dry dock are of the same design as those used in the locks, and the various members and plating were furnished by the same contractors, the McClintic-Marshall Construction Co. The erection and riveting were done by hired labor. The south leaf was erected, riveted, and placed on its pintle by November 27, 1915, and the north leaf by December 14, 1915. The cost of erecting the gate leaves, exclusive of the greenheart, was $98.9205 per ton. The miter posts and the quoin posts are of greenheart timber obtained from British Guiana. The gates will finally receive a coat of bitumastic solution a id one of enamel.

The machinery for the pumping plant for unwatering the dock was furnished by Henry R. Worthington under contract. It was completed by the close of the fiscal year and tested out subsequent thereto;

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the results were very satisfactory as its efficiency was in excess of that specified by the contract. The cost, including the bonus earned for increased efficiency, amounted to $151,476. The flooding and sluicing valves are complete, and the dry dock is in condition for use.

Entrance basin.—No excavation was necessary in the entrance basin during the year, except some hand work in connection with placing a concrete apron in front of the entrance of Dry Dock No. 1, and leveling the bottom of this basin so that it would all be below elevation minus 45. The amount excavated was 1,300 cubic yards, at a cost of $1.3009. All tracks and other material were removed prior to April 1.

Cofferdam.—The cofferdam, which kept out the water from the area occupied by the dry dock, unloader wharf, entrance pier, and basin, during construction, was drilled for blasting during February, March, and April. Sufficient drilling was done by April 1 to permit an opening to be blasted through the cofferdam approximately 180 feet wide. In blasting, care was exercised so as to protect the completed work from injury. No dredges were available until toward the close of the fiscal year, when an opening was made sufficiently large for the docking of the *Corozal*, one of the units of the dredging fleet, on June 27, 1916.

Entrance Pier No. 9.—The gravity wall, which was designed to form the south wall of proposed Dry Dock No. 2, was completed last fiscal year. Of the length authorized, there yet remained the headwall and the concrete steel decking. These were completed in March, 1916. In January an extension of 131 feet at the outer end of this wall was authorized; this extension consists of a steel and concrete deck supported on monolithic concrete piers. In addition a curtain wall was built so as to facilitate the completion of Dry Dock No. 2 should it be undertaken. This extension was completed before April 1, and required the placing of 5,338 cubic yards of mass and 3,984 cubic yards of reinforced concrete, the average cost of which was $6.0529 and $8.8442 per cubic yard, respectively.

Balboa coaling plant.—This plant, a description of which is given in previous reports, occupies an area of 9.4 acres, of which 350 by 300 feet is constructed for the subaqueous storage of coal, with a bottom elevation of 18 feet below mean sea level; the balance of the inclosed space has an elevation of 10 feet above mean sea level, and is available for leasing to private interests. The work performed during the year on the coaling plant consisted of a continuation of the construction of the coal pockets and wharves, and the erection of coal-handling machinery under contract. The Panama Railroad tracks were removed from the site of the east coal pocket, the excavation in the pocket completed, the floor leveled and riprap retaining walls built in. There were excavated 1,760 cubic yards of rock, at $0.3936 per cubic yard, and 1,636 cubic yards of concrete laid, at a cost of $10.1749 per cubic yard. Prior to flooding the subaqueous storage pocket, cross-sections were taken from which the capacity of the pocket could later be computed.

Unloader wharf, Dock No. 7.—At the close of the previous fiscal year, the unloader wharf was completed up to the point where it intersects the cofferdam, or about four-fifths of its length The wharf is constructed on piers resting on solid rock with decking of steel incased in concrete. To carry the wharf construction through the

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cofferdam without admitting water, interlocking sheet steel piling was driven and the area occupied by each pier thereby inclosed. To get the piers to proper grade, it was necessary in some cases to resort to caissons. All foundations were completed in March and the floor system in April. There were placed during the year 4,835 cubic yards of mass and 2,483 cubic yards of reinforced concrete, at a cost of $5.2984 and $8.3116 per cubic yard, respectively.

Reloader wharf, Dock No. 6.—At the close of the last fiscal year most of the cylindrical piers were finished; those remaining were near the junction of the unloader and reloader wharves, and the 8-foot diameter piers under the wharf bunker. Two difficulties were encountered in working the 8-foot cylinders: (1) When the toe reached stiff clay the frictional resistance became so great as to prevent further driving of the shell, and (2) at about 50 feet below ground level the pressure on the shell was great enough in several cases to crush the caisson. To overcome the difficulties, a short caisson, 7½ feet in diameter with heavily reinforced toe, was inserted; an angle bar with iron brackets was riveted around the inside at the top to strengthen it, and bolted sections of 6-foot caissons set on it to act as a "follower" on which to rest the driving hammer. The crushed section of 8-foot shell was cut and removed, after which the inner cylinder was sunk without much difficulty. To overcome the outward thrust from the back fill, steel rods were used to tie the wharf to an anchorage buried in the fill 90 feet to the rear; for the north half of the dock this anchorage is a continuous concrete wall 6 feet wide by 9 feet high, supported on two rows of wood piling. To minimize the thrust still further, the back fill is sloped 1¼ feet horizontally to 1 foot vertically from a line 25 feet back of the wharf, the slope being riprapped down to low water. There were driven during the year 1,693 linear feet of 6-foot and 184 linear feet of 8-foot caissons and 61 linear feet of 4-foot caissons. Concrete filler in the substructure consists of 6,182 cubic yards, and in the superstructure of 4,757 cubic yards, all of which was reinforced, and was placed at an average cost per cubic yard of $7.4154 and $9.1686, respectively.

Coal-handling plant.—The unloader towers, as a part of the coal-handling plant, were completed in their essential parts. The reloader towers, and the conveyor system, were completed but the machinery was not all installed. The rehandling plant consists of the berm cranes used for laying concrete during the construction of the Pacific locks. They have been reerected and are ready for operation.

Repair wharves and commercial pier.—The two remaining caissons of Dock No. 13, quay walls C-D-E, were finished and the floor slab poured early in the year. Later an extension was authorized necessitating the placing of 21 more 6-foot caissons, and also caisson supports for the crane tracks from the dry dock to Dock No. 13, requiring seven 6-foot and five 4-foot caissons. All of these foundations were finished by the end of December, 1915. Delay in receipt of steel has delayed the completion of the wharf. The average cost of excavation in caissons was $2.6519 per cubic yard, and the average cost of concrete filler, including reinforcement, was $6.1334 per cubic yard.

Fill was placed behind Dock No. 14, quay wall E–F, consisting of Sosa Hill rock plowed off Lidgerwood cars from a track near its rear face. The anchorages were all put in place, the ground leveled, the piping installed, and the permanent tracks brought to their final level.

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Pier No. 18 is for commercial use; it is the first of a series shown on Plate No. 93, accompanying the annual report for 1915, for the development of Balboa Harbor, should additional facilities be required on the Pacific side. The back fill in the central portion, between the inner rows of cylinders, resting on the soft underlying mud, caused a slight spread at different points along the pier. This was overcome by taking out the top of the fill and placing two additional 3⅛-inch tie-rods to each bent, with four sets of bands of heavy steel plate encircling the caissons forming bents Nos. 20, 25, 30, and 35. A double row of piles was also driven around the entire inner face of the deck slab, on which was placed a concrete wall to retain the back fill, which was composed of coral rock, a relatively light material. The shed or covering of the dock is completed and necessitated the erection of 1,930.5 tons of steel, at a cost of $15.5436 per ton, and the placing of 1,390 cubic yards of concrete, at a cost of $24.8202 per cubic yard. The roof is of tile similar to that placed on the shops' buildings. Sliding doors furnished by J. Edward Ogden Co. complete the inclosure of the pier. The cost of the pier, exclusive of dredging, was $1,028,399.34.

Reinforced concrete pontoons.—It was decided to construct the four reinforced concrete pontoons or barges to be used as small-boat landings in slips Nos. 17 and 19, Balboa, on the floor of the dry dock, this being the most convenient location for the purpose. The dimensions of the pontoons are 120 feet 6 inches long by 28 feet 2 inches wide by 7 feet 10 inches deep, and they were designed to float with a 3-foot freeboard. The entire bottom, sides, interior bulkheads, and frames up to a height of 6 feet, or 2 feet from the top, were cast in one continuous pour. The pontoons complete, with all accessories, cost $44,111.76. After the forms were stripped the sides were waterproofed by the "Sylvester process."

Cristobal coaling plant.—The Cristobal coaling plant is constructed at the north end of the island formed by the French Canal and The Panama Canal as now constructed. It occupies an area of 19 acres. Of this an area 307 feet by 500 feet is for the subaqueous storage of coal, the bottom of this area being at 28 feet below mean sea level. The rest of the area had been filled in and leveled off at elevation 2 feet above mean sea level with material excavated by the dredges along the sides of the wharves constructed as part of the coaling station. This area is provided for leasing to private coal dealers, as the policy adopted does not contemplate the United States creating a monopoly on coal for vessels utilizing the canal—merely as a regulator of prices.

The wharves on three sides of the area reserved for subaqueous storage are constructed by 6-foot diameter steel cylinders driven to hard rock, excavated and filled with concrete reinforced with vertical steel rails. The caissons for the end wharf were completed in December, 1915, thereby finishing the substructure. Much difficulty was experienced with two of the caissons under the wharf bunker, which collapsed in August, due to heavy pressure on the north side. After unsuccessful attempts had been made to drive 8-foot cylinders in their places, the design was changed by substituting 6-foot cylinders driven one on each side of the two 8-foot cylinders, and connecting them after they were driven, excavated and filled with concrete by a heavy steel girder upon which was placed the main girder for the

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floor system. The foundations of the wharves consist of 312 six-foot diameter steel cylinders driven to hard rock, as described in the last annual report. To fill these cylinders 20,917 cubic yards of concrete were required, and were placed at a cost of $4.7930 per cubic yard. The concrete floor of the end wharf was completed in January, 1916, which completed the floor system of the area surrounding the coaling station. A system of floating fenders was installed to breast vessels about 5 feet away from the concrete docks. An oil pipe was laid along each side of the plant across the end wharf and across the French Canal connecting with the oil supply at Mount Hope. This oil line was provided with suitable outlets, so that fuel oil can be supplied to vessels lying alongside. Similar arrangements were made for supplying water to vessels. For the reinforced concrete floor slab and the encasement of floor girders 17,211 cubic yards of concrete were laid, at a cost of $4.6351 per cubic yard.

During the year the dredging division completed the excavation to minus 41, a slip 250 feet wide along the unloader wharf, all the entrance basin and berthing space along the wharf, and approximately 80 per cent of the slip 300 feet wide along the reloader wharf. Under the wharves coral rock and sand were pumped so as to form a retaining wall between the cylinders to 2 feet above mean sea level, to afford a protection to the coal in subaqueous storage against wave action.

The plant to operate in connection with this coaling station consists of four unloading towers, two stocking and reclaiming bridges, steel viaduct and reloader towers, together with a conveyor system for the wharf bunker. The coal-handling machinery and accessories are being supplied under contracts with Augustus Smith and the Hunt Construction Co., the latter company furnishing the unloading towers. Arrangements were made looking to the completion of the unloading towers ready for operation by September 1, 1915, and the desirability of using these for handling coal to ships before the rest of the plant was completed resulted in a modification of the contract providing for the addition of two loading-out chutes to each unloader tower, at an aggregate cost of $5,140. The expectation as to the completion of the unloading part of the plant was not realized, for it was not completed until February, 1916. The tests of the unloader towers were commenced February 28, 1916. Owing to the fact that a number of adjustments and modifications were considered necessary to correct defects and deficiencies in order to secure compliance with the specifications, the towers were not accepted, nor have they yet been accepted by The Panama Canal. The balance of the plant is practically completed but not accepted.

East breakwater.—The east breakwater was undertaken to break up the waves created by the trade winds, so that barges and small boats might lie safely alongside ships anchored in the harbor for purposes of coaling, delivery of supplies, and transfer of passengers. It is a detached breakwater 6,741 feet in length, the outer end 2,000 feet from the extremity of the west breakwater, and the inner end, as now constructed, 4,500 feet from the shore at Coco Solo, this point being determined by the configuration of the shore and adjacent shoals, which will assist in breaking up the waves. Its outer end is bent back, forming an ell 235 feet long.

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The rock used in its construction was taken from Sosa Hill, on the Pacific side, from which was also procured such armor rock as could be economically quarried, the rest of the armor being supplied by concrete blocks manufactured especially for the purpose. The core rock, dumped from either side of a double trestle, left a depression between the two mounds thus formed which was filled by coral rock and sand, placed by a suction dredge operating in the vicinity of Coco Solo.

Prior to the beginning of the year the trestle used in constructing the breakwater had been washed away, as noted in the previous annual report, by two northers, and the salvaging of trestle material was continued until October 16, 1915. A large amount of material was recovered and used again. Work on the new trestle was completed on October 7. A single track trestle, 444 feet long, was built for the ell, and 1,644 linear feet of double track were driven, equal to a total of 1,866 linear feet of double-track trestle, in which 101,530 linear feet of piling were used.

Quarry operations were begun as soon as the condition of the trestle warranted, and in order to procure as much armor rock as possible, the quarry was operated on two levels. During the year 503,659 cubic yards of rock were excavated, at an average cost of $0.5803 per cubic yard, of which 359,472 cubic yards of core and 62,389 cubic yards of armor rock were shipped to the east breakwater. In securing this rock 7,433 cubic yards were removed in stripping.

The amount of wet fill handled by the dredging division and placed in the body of the breakwater aggregated 326,213 cubic yards, of which 155,036 cubic yards were placed during the year. In addition, 134,502 cubic yards were pumped along the trestle connecting with the shore to give it lateral stiffness. As it was not possible to make the base of the breakwater sufficiently broad by dumping rock from the trestle, when the core-rock fill was completed the toe of the slope on the harbor side was extended by dumping hard dredged material from scows and by pumping coral rock and sand from a borrow pit near the shore at Coco Solo. The scow material was obtained from excavation near the Cristobal coaling plant, and amounted to 145,257 cubic yards. The material pumped in place aggregated 541,857 cubic yards.

To secure the armor rock necessary for the breakwater from the Sosa Hill quarry would have required wasting a considerable amount of additional material, which would have added greatly to the cost of the armor, and there was no suitable locality in the vicinity of the quarry where the waste material could be dumped. An examination of the relative costs led to the conclusion that it would be cheaper to substitute for this rock concrete blocks. A contract was entered into for the manufacture of 10,000 of such blocks, measuring 7 feet on the side, containing 12.3 cubic yards, and weighing about 50,000 pounds, at a cost of $0.385 per cubic yard. Under this contract there were delivered and placed in the east breakwater 6,182 blocks, and 590 blocks were used in repairing the west breakwater, which was damaged by the norther during the previous year. The material used was run-of-bank Chagres gravel, with cement in the proportion of about 6 to 1. This mixture was subsequently changed to 4½ to 1. Progress under the contract for blocks was not satis-

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factory, and in order to increase the supply of blocks over those secured under contract the manufacture of blocks by hired labor was undertaken at Coco Solo and at the coaling station by the terminal division. The blocks manufactured at the coaling station for the breakwater were 5 feet 3 inches on the cube, containing 5.3 cubic yards. The mixture was run-of-bank gravel and cement, 4½ to 1. Those manufactured at Coco Solo measured 6 feet 3 inches on the side, containing 9 cubic yards each of the same mixture. The total number of blocks manufactured at Coco Solo was 3,644, at a cost of $3.6810 per cubic yard, and at the coaling station 4,121, at a cost of $3.9934 per cubic yard.

The terminal division had supervision over the construction of Pier No. 7 for the Panama Railroad Company. The dock, with the exception of the shed, was practically complete at the close of the year; the total amount expended was $1,366,815.02; there remains, to complete the pier for operation, the erection of the shed, which is now in progress.

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ELECTRICAL DIVISION.

This division continued in charge of Capt. William H. Rose, United States Army. The duties of the division comprised the operation of all steam and hydroelectric power plants, the Balboa air compressor; the electrical transmission and distribution systems, and house and street lighting systems; the telephone, telegraph, and automatic railway signal system of the Panama Railroad; the design and construction of all extensions and additions to such systems; and the installation, operation, maintenance, and repair of electrical apparatus of all kinds for other departments and divisions of The Panama Canal.

The hydroelectric station at Gatun, the Miraflores steam-power plant, and the substations, high tension transmission lines and distribution lines were operated satisfactorily during the year. The old steam-generating station at Gatun was dismantled, and the turbo-generators, boilers, and other equipment installed in the Miraflores plant extension, which was constructed for the purpose.

New water wheels of 4,400 h.p. were ordered for the main generating units of the Gatun hydroelectric station, which will result in increasing the capacity of the station by about 40 per cent. New cable feeders, oil switches, and other auxiliaries for taking care of this increased output have also been ordered, as well as two new 4,000 k.v.a. 44,000 volt transformers for the Gatun substation.

Attention was called last year to the necessity for arranging for increased power, and the appropriations for the coming year provide for an extension to the hydroelectric station by the construction of another building of the same size as the present one, the addition of three new penstocks and one new 4,500 k.w. generator unit. It has been found advisable to change the voltage of the generating station from 2,300 to 6,600 volts to reduce the number and cost of feeder cables between the hydroelectric station and the Gatun substation.

The average production cost of current of the hydroelectric station during the fiscal year was $0.0006 per k.w. hour, including all opera-

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tion, maintenance, repair, and division overhead charges, but not including depreciation. Including a charge of 3 per cent of the capital cost of the entire power system for depreciation, the cost of generating power at the hydroelectric station was $0.0027 per k.w. hour; as distributed from substations, including all charges, the cost of the current for power purposes was $0.00773 per k.w. hour. The cost for lighting service, including the maintenance of house lighting systems and lamp renewals, was $0.0145 per k.w. hour.

The cast-iron liner plates and floor plates installed on the baffle piers of the Gatun spillway were in such condition as to necessitate replacement. The concrete behind the iron liner plates was badly rotted away and while thoroughly repaired the action since has been such as to necessitate another overhauling during the next dry season.

On June 30, 1916, 1,878 telephones were in service. During the last six months of the year there was an average of 15,165 telephone calls per day.

A large amount of construction was done by this division on underground conduit lines and underground and overhead distribution lines, as well as in street and yard lighting systems. Motor-driven pumps were installed at Mount Hope Dry Dock. Two hydroelectric graders for the dredging division work on the slides were fitted up; electrical equipment was installed on four berm cranes for the Balboa coaling plant and in the pumping and air compressor plant at Balboa Dry Dock. Lighting and power systems were designed and material purchased for Pier No. 7 at Cristobal and Pier No. 18 at Balboa. Most of the work on the latter pier was completed.

Meters were installed for The Panama Canal and for the Army in in 383 houses. Designs and specifications were prepared and material purchased and installed for electrical installation in all new buildings constructed for the canal and for the Army.

MUNICIPAL ENGINEERING DIVISION.

The organization of the municipal engineering division remained unchanged and continued in charge of Mr. D. E. Wright, as municipal engineer. The municipal division has charge of all water-supply systems on the Canal Zone, including the operation of the water-purification plants.

The water supply for the Isthmus, with the exception of that for the three military posts on the west side of the canal, is furnished by three systems. The water for points north of Gatun, with the exception of Toro Point, is furnished by the Mount Hope plant, which includes the pumping station and the water-purification plant located at Mount Hope. The water is taken from the Brazos Brook Reservoir, supplemented by water obtained from Gatun Lake, at elevation plus 75, through a 20-inch pipe laid in a tunnel 6 feet by 6 feet. The average amount of water handled at this station during the year was 131,232,000 gallons per month.

The water for Gatun and Gatun Locks is furnished by the plant located at Agua Clara, and is obtained from the Agua Clara Reservoir, purified in the filtration plant located near the reservoir and forced by pumps at this station through the distribution system, supplying Gatun and the locks, and also to a 300,000-gallon concrete

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reservoir located 1½ miles east of Gatun, which acts as a surge tank. The average amount of water handled at this station during the year was 22,580,000 gallons per month.

The water for Paraiso and all points south, including Panama City, is furnished by the Miraflores plant, which includes the pumping station at Gamboa, Miraflores, and Balboa, and the purification plant at Miraflores, together with the distribution systems and reservoirs. The water is obtained from the Chagres River at Gamboa, and is pumped from there to Miraflores, from which point, after purification, it is supplied to all points south of Paraiso and east of the canal. The total quantity of water handled by this system during the year amounted to an average of 248,963,000 gallons per month.

The municipal division also has charge of the water-supply systems for the troops on the west side of the canal, the water at these points being obtained from the Rio Grande and Comacho Reservoirs, and pumped through the distribution systems to supply the posts. Small pumping plants are also operated at Monte Lirio and Frijoles, to furnish water for the settlements at those points.

The maintenance of the roads, streets, and sidewalks in the Canal Zone, and of the streets in the cities of Panama and Colon, is also a part of the work of the municipal division. The work in the terminal cities is performed for the Panaman Government and the expenses repaid from the water rents collected in these two cities.

A large amount of road-construction work was carried on during the year, particularly in the Southern District in and around Balboa and Ancon. The extension of the Balboa townsite improvements was commenced in March, and was in progress during the rest of the year. This consists of the necessary grading, the construction of streets, and the installation of water and sewer lines in that part of Balboa lying between the existing town and Ancon Hill, to take care of new quarters to be built during the current year. All of the road construction was of Telford base with concrete asphalt surface.

Several important items of construction work were performed by the municipal division for other divisions of The Panama Canal, the Panama Railroad, and the Army, and a part of the work was still in progress at the close of the year. The principal items consisted of water and sewer systems, roads and pavements for the Army posts at Fort Amador and Fort Randolph, and the construction of pavements and grading around the Balboa shops and terminals.

In connection with the water-supply systems of the Zone, Mr. George C. Bunker is employed as physiologist, in charge of the purification plants and the work of the laboratories connected therewith. Notes on the results of his investigations of tropical waters during the past year, carried on by him and under his direction, were set forth in a report, and are of such interest as to warrant their publication.

METEOROLOGY AND HYDROGRAPHY.

This division continued in charge of Mr. F. D. Willson, chief hydrographer. The tide gauge at Balboa was moved on September 19, 1915, from the old location under the Panama Railroad steel pier to the new concrete dock No. 18. Arrangements were made whereby

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the weather conditions prevailing over the Caribbean Sea, the Gulf of Mexico, and the South Atlantic Ocean each day at 2 p. m. are received and distributed to the port captains and other shipping interests. At the request of the Argentine Government the daily weather conditions prevailing over the Canal Zone at 8 a. m. are cabled to Buenos Aires.

The rainfall for the calendar year 1915 was above the average at 10 stations and deficient at 8 stations. The average precipitation over the Pacific section was 74.98 inches; over the central section 102.61 inches, and over the Atlantic section 148.60 inches. The maximum 24-hour rainfall recorded during the year was 8.30 inches at Gatun on April 3 and 4. The rainfall during the first six months of 1916 has been above normal over the Pacific section and southern part of the central section, and below normal over the Atlantic section and northern part of the central section.

The average temperature for the year 1915 was near the normal on the Pacific coast, and approximately 1 degree Fahrenheit above the normal on the Atlantic. At Balboa Heights the maximum temperature was 93° F., on April 11, and the minimum, on January 31, 69° F. At Colon the maximum was, on September 27, 91° F., and the minimum on February 10, 72° F.

The wind movement over the Canal Zone for the year 1915 was slightly over the average. Northerly winds prevailed.

No fogs were observed during the year 1915 at the Atlantic coast, but a total of three fogs was observed at the Balboa Heights station near the Pacific coast. Numerous fogs were observed at the interior stations where fog records are kept, and practically all observed lifted or were dissipated by 8.30 a. m.

Fifty-nine seismic tremors were recorded at the Balboa Heights seismological station during the fiscal year. Six of these disturbances were of sufficient intensity to throw the pens from the instruments, and quite a number were strong enough to be generally felt in the Canal Zone. Most of the tremors were of comparatively local origin, less than 600 miles distant. There was an apparent revival of activity in the Los Santos Province that reached the maxima during the latter part of November, 1915, and during the first part of February, 1916. After this time the scene of activity shifted to the northwest, culminating in the tremors of April 26, during one of which considerable damage was done to the wharf and merchandise stocks of the United Fruit Co. at Bocas del Toro. The intensities of the various shocks varied from I to V on the Rossi-Forel scale of I to X.

The yield of the Gatun Lake watershed during the dry season months of 1916, January to April, inclusive, was normal, or an actual yield of 2,200 second-feet against an estimated yield of 2,160 second-feet. It was necessary to waste during January over 2,000,000,000 cubic feet of water, but during February, March, and April the inflow was exceeded by water usage for municipal purposes and evaporation. From January 1 to May 1 the lake was lowered 0.42 of a foot, representing a loss of 1.95 billion cubic feet of storage. The 2,000,000,000 cubic feet of water which were spilled after all the regular demands for water had been met would have been sufficient to provide for approximately 330 lockages in addition to those actually made during the dry season. There were no large freshets during the year 1915, although the yield of the watershed was the largest

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in the 1911–1915 period, the time Gatun Lake has been an actual body of water.

From a study made of the water supply for the canal it was ascertained that an average of 7.21 million cubic feet of water were used for each through lockage from ocean to ocean; that an average of 12,787.47 million cubic feet of water was wasted over Gatun spillway, or a sufficient quantity of water to make 1,773 through lockages each month. Based on 30-day operation this would mean 59 lockages per day over and above the average traffic for the past year. In this connection it may be stated that the maximum number of lockages which can be made in 24 hours is 48, assuming that one vessel leaves the upper flight at Gatun just as another enters the lower chamber, and vice versa, both chambers being used.

* * * * * * *

DREDGING DIVISION.

The dredging division continued in charge of Mr. W. G. Comber, resident engineer, assisted by Mr. James Macfarlane, superintendent of dredging. The division is divided into two districts, the first embracing all dredging operations in the Pacific entrance, Miraflores Lake, and Gaillard Cut; the second district, all dredging operations in the Atlantic entrance and Gatun Lake to Gamboa Bridge.

As stated in the annual report for 1915, all dredging done in any part of the canal necessary to complete the channel to its full width and depth was charged against construction funds, and all dredging done in portions of the canal where the full width and depth had been secured at the time the canal was opened to the use of commerce became a proper charge against and was paid for from maintenance funds. Consequently, part of the dredging operations constituted construction work and was paid for from such funds.

The dredging equipment in use during the year consisted of seagoing suction dredge *Culebra;* pipe-line dredges *Nos. 4, 82, 83, 84, 85,* and *86;* the 15-yard dipper dredges *Gamboa* and *Paraiso;* the 5-yard dipper dredges *Cardenas,* to September 30, 1915, *Chagres,* to October 31, 1915, and *Mindi,* to November 3, 1915; seagoing ladder dredge *Corozal* and the French ladder dredges *Nos. 1* and *5* and *Marmot;* the *Gopher* was in service until August 15, 1915; drill barge *Teredo No. 2;* the rock breaker *Vulcan;* and the 15-yard dipper dredge *Cascadas.* This dredge is an improved model of the dredges *Gamboa* and *Paraiso,* certain changes in design having been suggested by the officials of the dredging division to overcome some of the defects that had developed in the other two dredges of this type, which had been in operation for some time before the *Cascadas* was ordered.

To assist in washing down slides and to arrange drainage through them two hydraulic graders were built, both of which went into commission in December, 1915.

Nine additional dump scows were added to the equipment employed, four of wood and the remainder of steel; of the latter two have a capacity of 3,000 cubic yards each.

The construction dredging consisted of excavating the inner harbor at Balboa, including the dredging around Pier No. 18 and the repair to the wharf, aggregating 1,839,594 cubic yards, at a cost of $0.1928 per cubic yard; in the vicinity of the Cristobal coaling plant

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21,609 cubic yards, at a cost of $0.3643 per cubic yard; in the vicinity of the east breakwater 353,344 cubic yards, at a cost of $0.4730; and from the canal prism, Miraflores Lake, 18,602 cubic yards, at a cost of $0.2734 per cubic yard; Cucaracha slide, 264,850 cubic yards, at a cost of $0.3470 per cubic yard, making a total of 4,616,376 cubic yards excavated since the dredging division began work on this slide; at the Pacific entrance, between Miraflores Locks and deep water at sea, 8,964 cubic yards of earth and 39,160 cubic yards of rock at a cost per cubic yard of $2.26, the high cost being due to drilling and blasting rock areas to be removed later, the latter being broken up by the rock breaker *Vulcan* and by the drill barge; and in the Atlantic entrance 20,746 cubic yards of earth, at a cost of $0.1323 per cubic yard.

The spoil from Gaillard Cut was disposed of on the dumps located in Gatun Lake from mile 30 to San Pablo, mile 24½; in the Rio Grande Valley south of Cucaracha; Miraflores Lake; at Paraiso, and along the east bank of the canal between Cucaracha slide and Paraiso. There were dumped in Gatun Lake 11,126,625 cubic yards, and in Rio Grande Valley 966,149 cubic yards; in Miraflores Lake 72,214 cubic yards; in swamps around Paraiso 501,615 cubic yards; and in the canal between Cucaracha and Paraiso 1,116,461 cubic yards. The material dumped in the canal was from the ladder and dipper dredges working on the south side of Culebra slide while the canal was blocked, and has been practically all rehandled and removed from the prism.

A large part of the work done by the dredging division was occasioned by the slides, and there was removed a total of 12,695,059 cubic yards, at a cost of $0.2820 per cubic yard. Of the total amount removed 10,872,509 cubic yards were rock and the balance, 1,822,550 cubic yards, was earth.

Surveys of the canal in the vicinity of the active slides were made daily; the channel was dragged and marked prior to the passage of shipping.

The spirit obtaining in the organization during the construction period was the subject of much commendation, but looking back over the period of my connection with canal work, the spirit that animated the dredging force seems to me to surpass that which existed at any prior period. The dredges were operated 24 hours every day, including Sundays and holidays, for a period of four months, without the least murmur or complaint on the part of anyone in the force, which reflects much credit on the officials of the division as well as on the men comprising it.

The dredging division continued in charge of the production of sand and gravel taken from the Chagres River, for construction purposes, for which purpose pipeline and ladder dredges were employed. Ladder dredge *No. 1* excavated 463,377 cubic yards of run-of-bank gravel, and suction dredge *No. 82* excavated only material to be screened, delivering 48,895 cubic yards of sand, 17,277 cubic yards of No. 1 gravel, and 50,852 cubic yards of No. 2 gravel. All gravel was delivered to the Gamboa handling plant. Sand was passed through a three-eighths-inch screen, No. 1 gravel through a 2-inch screen, and No. 2 gravel through a 2-inch screen.

The old slide at Buena Vista showed signs of new life in December, 1915, and on January 1, 1916, a crack had developed, starting at

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station 1559 and running over the top of a small hill 300 feet west of the prism line at station 1563 and joining the canal again at station 1567. The material was stiff clay and soft rock. On January 3, 1916, the hydraulic grader began operations, starting at a point about 50 feet back of the crack and cutting a uniform slope from the point of beginning to the base of the slide at the water's edge. This method stopped the movement and the material has remained quiescent during the rest of the year.

The three rock dikes built on the south shore of Limon Bay in 1915, 600, 1,100, and 1,600 feet west of the canal prism, to stop the erosion of the beach at this point, have proved entirely successful. This beach receded between 1905–1911 525 feet, or about 88 feet annually. July, 1911, to June, 1912, the beach receded 75 feet; 1912–13, 110 feet; 1913–14, 48 feet; 1914–15, 40 feet; 1915–16, since the dikes were completed, there has been no change. Only a few thousand yards of silt were deposited in the canal opposite this point during the year, where in past years the silting ran into the hundreds of thousands.

There will be found accompanying the detailed report of the dredging division a statement showing the amount of material removed from the canal prism by the dredges, together with all auxiliary work accomplished by these appliances since the commencement of the canal construction by the Americans in 1904, with a total cost per yard of $0.2667; also a statement of the work done by steam shovels during the same period, together with the cost.

* * * * * * *

SLIDES.

Although the question of the slides has been dealt with in previous annual reports and official documents, there continues to exist much ignorance on the subject. Also a great deal has been written by those whose little knowledge makes them dangerous, and to whose statements credence is given because of the position or prominence of the writers. I have concluded, therefore, to report again on the situation, even at the expense of repetition, notwithstanding the general belief that anything published in annual reports is buried in oblivion. Consideration will be given also to the various theories that have been advanced and to the remedies that have been suggested.

For some unaccountable reason there seems to be a general belief that the entire length of the Cut is affected. A report emanating recently from English sources states that the bottom of the canal through this section is found to be a bog, which is being constantly pushed up, and through which the dredges have difficulty in maintaining a channel; further, that it is acknowledged on the part of those in charge that the canal is a failure, and that American engineers are seeking information in England relative to the Nicaragua route. Such reports are false, and there is no foundation for them; yet they seem to have gained credence probably because a pending treaty between the United States and Nicaragua contemplates securing from the latter all rights for building a canal on its territory. As the Nicaragua route was at one time the one most generally favored by the United States, investigations by commissions, boards,

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and commercial bodies, covering a series of years, have been made of the route, and data of all kinds collected; consequently everything that is known about that route can be found at home, without the necessity of seeking information in England. It makes a good news item, however; makes converts to the belief that the entire 8.75 miles of the Cut is unstable, liable to collapse or upheaval, completely closing the canal for all time, is useful in assisting shipping companies to take advantage of present conditions to charter ships at excessive rates instead of complying with their obligations, and permits an increase in insurance rates.

Gaillard Cut extends from Pedro Miguel to Gamboa, a distance of 8.75 miles. The canal prism through this section averages 300 feet bottom width, and has a depth of 45 feet. Every foot of the existing channel was excavated through rock, all of which, though of various kinds and densities, had to be drilled and blasted in order to remove it. It is possible that the water may have softened some of the material, yet it is known that the softer varieties of rock encountered in the excavation were protected from disintegration by contact with water. The bog theory is a myth. The Cut has been stable with the exceptions of the portions in the vicinity of Culebra and at Cucaracha. The slides at Culebra are on both sides of the waterway, occupying a length of 2,800 feet, while the channel affected by the Cucaracha slide is less than 2,000 feet long, so that out of a total length of 8.75 miles only 0.88 mile is affected.

Another misconception that exists relates to the character of the slides. They have not been, except in part at Cucaracha, a slipping down of portions of a bank in order to reach the slope at which the material will stand. Slides of this character have occurred, but they were small in extent and easily handled. Those at Culebra are breaks resulting from deformation or crushing of underlying strata which, under changed conditions, could not bear the weight of the superimposed mass, and caused a vertical settlement or drop of the overlying material, which subsequently moved into the prism. Final rest will be secured when all the material that is in motion has been removed. As is shown by experience with smaller breaks that have occurred from the same cause, when the end is reached the final surface will be concave, or bowl shaped.

When water was turned into the Cut on October 10, 1913, the channel was completed to full width and depth except at Cucaracha, where the steam shovels were making but little headway against the slide; three benches which had been left (one at La Pita Point, one on the east side near Empire, and one on the west side opposite Cucaracha); the inclines, one at either end of the Cut; and the remains of two small slides, one on the east side, of the "break" variety, and the other on the west side, a typical slide of clay which occurred prior to the removal of the steam shovels, both of which, between Empire and Culebra, were cleaned up by the dredges and have remained quiescent since.

Cucaracha slide is on the east side of the canal south of Gold Hill. It began to give trouble as early as 1884, during the operations of the French Canal Co., but all the indications pointed to a surface movement only. The French built an elaborate system of drainage to overcome the difficulty, and, while successful so long as work of excavation was suspended, further deepening of the Cut in the vicin-

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ity resulted in renewed activity, with complete destruction of the drainage system; the remaining part of this system was carried away by the slide in 1907. The slide gave trouble in 1906, when excavation proceeded through this section. The difficulties increased as the depth increased and in the autumn of 1907 became most formidable. From this time until 1910 the difficulties became less, and it was believed that they had been overcome and that the clay remaining would be supported by a rock dike which was uncovered and which apparently possessed ample strength to retain the mass above and back of it. On January 20, 1913, the rock dike broke at or below the bottom level of the canal and completely filled the prism with clay and rock for a length of 1,600 feet, to a depth of 30 feet on the bank opposite from the slide, increasing toward the east on a slope of about 1 on 4. Steps were taken, by means of sluicing, to wash back as much of the top portions of the clay as possible into the valley on the east side of the ridge. As steam shovels could not cope with the situation economically and advantageously and as the remainder of the Cut was ready for the admission of water, this was allowed to enter and recourse had to dredges for the removal of the balance. The time within which a passage through the slide was cut, as well as the cost, is conclusive that this method was the most efficient and economical way of handling the material.

In July, 1914, troubles in Mexico interfered with the handling of cargoes by the Tehauntepec route, and shipping interests were clamoring for relief. The dredges had secured a channel through the slide, and the Panama Railroad operated a line of barges through the canal between the terminal ports, but these could not handle the traffic. While the full depth and width had not been secured through the slide, the channel was sufficient for the passage of shipping, and consequently the canal was opened to commerce in August, 1914.

Several movements have occurred since at Cucaracha, but they were handled easily and did not delay commerce until the last of August, 1916, when a movement occurred, bringing down material from the northeast corner of the slide area, and moved huge rock bowlders across the center line of the channel, so constricting it as to force a suspension of navigation on August 30, 1916. The largest mass of rock occupied a length of 65 feet. The bowlders required drilling and blasting operations in order to remove them. Holes 20 feet deep in a flintlike substance were drilled at great expense of time and drills before they could be broken up sufficiently for the dredges to handle, and the closure of the canal lasted eight days, although two small ships were passed through in the interval.

Gold Hill is of basalt, thrown up in a molten state through the sedimentary deposits that already existed and poured over the deposits on either side of the stem, giving to the vertical section the general shape of a mushroom. The portions projecting beyond the stem, being left unsupported, broke when the material moved from under, and the rock thus detached came down with the rest of the material at Cucaracha. This same action occurred on the opposite side of Gold Hill within a few months after the east Culebra slide became active.

A slide developed during the excavation in 1906 north of Gold Hill on the east side of the Cut. This was a typical slide, .. surface

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movement which flattens the slope, and slides of this character had occurred in this locality during the French occupancy. The French endeavored to overcome them by drainage tunnels, but the material through which they were built was too fine grained to permit the free passage of water, and the method was not continued.

In 1907, at the village of Culebra, the type of slides designated "breaks" first manifested itself. When the excavation had reached a depth of 135 feet above the finished bottom level, a crack appeared in the surface of the undisturbed ground, extending from one point on the prism slope to another. Subsequently there was a subsidence of the surface on the side of the crack farthest from the prism, accompanied by an upward movement of a portion of the bottom of the excavated area a little distance from the foot of the slope. This was followed later by a settlement of the mass between the crack and the Cut, which ultimately slid into the prism. The first break affected but a few hundred feet, but as the depth of excavation increased the breaks became more extensive both in length and quantities of material involved; then they occurred on both the east and west banks, the upward movement along the bottom of the excavation continuing until the area affected extended for a length of 2,000 feet north of Gold Hill. The borings of record failed to disclose any weak underlying strata.

The cause undoubtedly was the unequal distribution of the pressure exerted by the adjacent banks. Such being the case, it followed that if the height of these banks were reduced the movement would be lessened, and if reduced sufficiently would cease entirely. Subsequent events proved this to be correct. The banks were lightened by taking material from the top, and there resulted final slopes through this portion of the Cut of 1 on 1½ to 1 on 6½ for the east side and from 1 on 2.46 to 1 on 4.35 for the west side; the slopes consisted of a series of steps. The upheaving of the bottom ceased entirely, as already noted, and the canal prism was carried to full depth and width throughout the entire 2,000 feet.

Toward the close of the dry season, in April, 1913, a crack appeared on the east side opposite Culebra, about 1,300 feet from the prism, in an old French dump. It was parallel to the canal, did not join the banks, there was no breaking up of the banks between it and the Cut, nor any subsidence—in short, there were none of the indications that accompanied previous breaks. The geologist believed that it was due to the deformation of the underlying strata and advocated lightening the banks by sluicing and steam shovels, which was done. While this work was in progress the crack gradually closed, and though the surface between the crack and the Cut was in places noticeably below the level of the surface to the east of the crack, the closure was construed to mean that a condition of equilibrium had been reached. The canal through this section was completed, the water was turned in, and no further trouble was anticipated in this section.

A crack had existed for some years at the foot of Zion Hill, southeast of Culebra. The hill was pronounced geologically secure against any movement, and when the material was dug away from the upper portions of this bank, and the slopes of the final bench reached the crack, it did not increase and there was no movement.

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Just prior to turning in the water a rock slide occurred north of Gold Hill on the east side, increasing somewhat with the admission of water, causing no change, however, in the crack on the top. A similar slide occurred on the west side after the prism filled with water. In both instances the movements were typical of the ordinary slides—an adjustment of the slopes. The material was easily handled by the dredges and the channel freed of all obstructions before the canal was opened to navigation. This condition continued until October 14, 1914, when, without any warning, a section of the east bank north of Gold Hill settled vertically 20 feet. This section measured 2,000 feet along the prism face, and extended back about 1,000 feet from the axis of the canal, generally along an irregular curved line, but did not extend back to include the crack that had developed in 1913. The top of the bank was from 300 to 350 feet above sea level. After the settlement the upper surface of the portion that broke away remained practically parallel to its original position, and the existing benches of the upper part of the slide had not changed their relative positions, though they were badly broken up, but the lower strata were squeezed out across the canal, reducing the depth of water from 45 feet to 9 inches at one point within an hour's time. Subsequently the broken mass moved into the Cut, as was the case with other breaks. Navigation was suspended for a week, but after this and until August, 1915, the dredges were able for the most part to keep up with the material as it came down, and would have been able to maintain such condition had not a movement occurred on the west bank, necessitating work on this side to the detriment of the east side.

A crack was found on the slope of Zion Hill in June, 1914, higher up than the crack already mentioned, but observations made upon it showed no movement, and the solidity of the hill was never doubted. Subsequent to the break on the east side, a gradual but general breaking up of the west bank followed. The crack on the slope increased in size and new ones developed farther up the hill, until finally one extended to elevation 480 above sea level, the limit of the present break. The movement into the Cut from the west bank occurred early in August, 1915, when a section of Zion Hill broke away and settled down. The edge of the break on this side is also a curve.

The movements from the two sides were toward the central portion of the inclosed area, and at this central portion the bottom was forced up, at first forming an island, then a peninsula projecting from the east bank, and finally an isthmus entirely across the channel. The barrier increased until it had a length of 255 feet along the axis of the canal and an elevation of 65 feet above the surface of the water. The movements on the two sides are entirely different in character. On the east side a settlement of a mass occurs, the top generally tilting backward from the prism, with a shoving out below. On the west side, for the most part, rock masses become detached and gradually settle down vertically, with very little lateral movement, pushing out the material along the prism face.

When the break occurred on the east side it was realized that it would extend eventually back to the limiting cracks, and that all the material lying above some surface, concave in shape, unless removed,

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would eventually enter the prism. It was impossible to handle any of it by hydraulics away from the Cut, and the only other method would be by steam shovels. These could only operate on firm ground, and would necessitate the establishment of dumps. The number of shovels that could be worked would be limited, and considerable excavation would be required before the sliding material could be attacked. The dredges were capable of and were removing over 1,000,000 cubic yards per month without any of the difficulties attending steam-shovel operations, and what could be accomplished by the latter would be relatively so small and the cost so high that the idea of introducing steam shovels was abandoned and the decision reached that the material must be removed from the canal side by the dredges.

From experience with other breaks, it was known that the movement would not be continuous. A settlement occurs, by which material is pushed into the prism; the movement is at first heavy and rapid, gradually diminishes, and finally ceases. This condition of rest is disturbed either by the rains or by the operations of the dredges cutting into the banks. As all the material liable to move must be taken out by the dredges from the Cut, there would come a time when the machines would be idle, waiting for a movement to give additional material for them to handle. The judicious application of hydraulicking the bank would avoid such a condition, consequently pumps for sluicing operations were installed on two barges. These have been used for cutting and maintaining surface drainage and for washing down material to the dredges, when the conditions warranted it.

The finished section from Gold Hill north left an enormous mass of hard rock on the east side and at the northwest corner of Gold Hill. When the break occurred in 1914 this mass of rock was moved slowly into the prism, but finally came to rest and seemed to hold the material back of it, limiting the area of interference in the channel. It stood up boldly for nearly 100 feet and was designated by the working force as "Gibraltar," which designation will be used when referring to this mass of rock.

The slipping of the material into the Cut removed the support to the mushroom portions of Gold Hill on its north side, which broke off in large masses and followed down diagonally toward the prism, the effect being similar to that described as having taken place at Cucaracha, and the direction of the movement was due, no doubt, to the retaining effect of "Gibraltar," though this took up slow movements at times when the heavier masses back of it were disturbed by subsequent settlements.

If the width of the prism through the slide section remained as fixed for the project—300 feet bottom width—every movement that occurred on either the east or west bank would contract the channel, and should a movement occur in both banks at the same time it would probably result in closing the canal to navigation. The necessity of restoring the channel to permit the passage of ships and the maintenance of navigation were the main considerations. An addition to the width sufficient to take care of material pushed in by subsequent movements, thereby increasing the chances of maintaining a channel, was considered advisable until all the loosened

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material had been removed. This led to a modification of the projected width, which was increased to 500 feet, 100 feet on either side of the original prism lines.

The conditions as they existed then—in November, 1915—found the canal closed to navigation indefinitely. There was across it an isthmus 250 feet long in the direction of the axis of the canal, the top of which was about 65 feet above water; the dredging operations were confined to the north of this isthmus, working toward the south, with arrangements made for washing down the material in case it was advisable to accelerate the motion of any part of the sliding area, and with the project modified so as to give a completed width north of Gold Hill of 500 feet.

In October, 1915, the President of the United States was advised by a member of the National Academy of Sciences—which was organized by an act of Congress to give expert advice to the President and Congress on scientific matters—who stated that one of its members had made an extensive study of earth slides in tropical countries, and was convinced that there were relatively simple ways by which they could be stopped, and suggested that a committee of mining engineers and geologists of the academy be appointed to consider his propositions. In consequence of this, the President of the United States requested that a committee be appointed by the National Academy of Sciences to "Consider and report upon the possibility of controlling the slides, which are seriously interfering with the use of The Panama Canal." From the correspondence it appears that at a meeting held in New York, "* * * the hope was repeatedly expressed that an effective solution may speedily be found."

The coming of the committee was welcomed on the Isthmus, for so much misinformation had been sent broadcast, doing more injury to the canal than the closing of it by the slides; confidence had been upset; and it was hoped not only that a remedy would be forthcoming but that the report of the committee would be able to restore confidence in the project, especially as those connected with the work knew that the methods adopted would overcome the difficulties for good and all, given the time and money, and that the waterway would be all that had been expected.

Probably the greatest injury done the canal was through Prof. Benjamin Le Roy Miller, Ph. D., who occupies the chair of geology at Lehigh University. On returning to New York from Costa Rica he stayed here a couple of days awaiting a steamer. He was given every facility to examine the slides at Culebra, which were then at their worst, and he is reported to have said for publication on his arrival in the United States that he had made a "thorough examination of the slides," and the conditions found were as follows—the statement appearing in quotation marks in the press item:

> At the Culebra Cut * * * cracks have formed over 1,300 feet back from the canal, and all of the ground intervening is moving toward the Cut. There is no doubt that much rock, now apparently stable, also will move, as its support is withdrawn by the removal of loose earth and rock. Before the canal can be said to be completed and permanently opened to traffic, the amount of material that must be taken out will not fall far short of the amount already taken from the Culebra Cut.
>
> Transportation companies planning to use the canal should realize that they must not expect uninterrupted service for several years. During the dry season the canal may be opened, but it is certain to be closed during the rainy season when the earth is soaked with water and its movement toward the canal facilitated.

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In view of the extent of the material that has now started toward the Cut, it seems that steam shovels should again be employed. Practically all of Gold Hill and much of Zion Hill must be removed, and to wait until the earth breaks loose and enters the Cut where the dredges can attack it seems unwise, and unquestionably longer delays the completion of the project. If dredges alone are employed, as at present, the canal may be kept clear during the months when rainfall is lightened, but for many years to come the rainy season is almost certain to cause such slides as to close the canal for weeks or even months.

The "thorough examination" occupied fully three or four hours of his time. The position that he occupied in one of the leading universities of the United States gave credence to his statements, which were copied broadcast, and commented upon editorially to the detriment of the canal. His dire predictions were naturally unsettling to shipping interests, which were guided by them to some extent in routing their commerce elsewhere.

It was anticipated that the committee from the National Academy of Sciences would make a more thorough examination than Prof. Miller had done, and it was hoped that, as a result, the statements of Prof. Benjamin Le Roy Miller, Ph. D., would be found to be what we considered them—erroneous, unwarranted, and unfair, and help restore the confidence that he had helped to destroy.

The preliminary report by the committee of the National Academy of Sciences was submitted to the President in January, 1916. At that time they expected that their final report would be completed in April, but up to date it has not been received. The preliminary report will be found in Appendix N. It will be noted that the statement made by Prof. Miller, that practically all Gold Hill and much of Zion Hill must be removed, is not concurred in; and in this connection it should be remembered that a committee of this character expresses its opinions guardedly, for whatever happens they must be found on the right side. They advocated, as a matter of scientific interest, the making of an accurate triangulation of the hills in question—Gold, Contractors, Culebra, and Zion—which has been done. By checks made at frequent intervals the slightest movement on the part of any of the four hills would be disclosed at once. No movement of any kind has taken place.

The committee expressed the belief that every available and practicable device for controlling the water, both on the surface and underground should be employed, and to this end advocated covering the slopes with vegetation to prevent surface wash, closing peripheral cracks, draining undisturbed and threatened areas, and draining by tunnels.

For several years the expedient of covering the slopes with vegetation has been carried on, starting under the direction of Dr. Pittier, of the Smithsonian Institution. Where the surface of the ground is in motion, as in the case of active slides, the roots are disturbed, and the steady growth of vegetation is impracticable. Trees and vegetation of all kinds growing on the surface of the ground which broke in October, 1914, were carried down the slide and exercised no deterring effect whatsoever. On sliding ground there is not sufficient time to plant anything and no good would be accomplished. Where the banks consist of the red clay of the country, it is only after considerable difficulty that grass of any kind can be grown on them. Vegetation stops erosion; on this account the work was undertaken and is being carried on.

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When peripheral cracks occur in rock with sufficient earth covering they may be effectually closed by the use of a hydraulic grader, as was done in an incipient slide on the west bank of the canal near Las Cascadas. The sluicing down of the earth into a uniform slope not only fills the cracks and prevents the access of surface water into them, but facilitates the drainage by providing a ready means of run-off into the canal. This method, while applied with good results at the north end of the East Culebra slide, so long as the material is at rest, a subsequent movement develops new cracks and irregularities so that until all loose clay and rock is removed and the final slope reached, the relief is temporary only. Where there is very little earth covering, as is the case on Culebra Hill, and where the cracks are wide and extend a great depth in rock, it is not practicable to close them permanently without expense that is disproportionate to the results obtained.

In compliance with the expressed wishes of the committee while on the Isthmus, subsurface tile drains have been installed within an area on Culebra Hill as an experiment. Also, as suggested by the committee, the fault fissure under the hard Obispo tuff on the north side of Contractors Hill has been sealed and a concrete-lined drain constructed, draining the surface water into the canal, with a view to the protection of the Cucaracha rock beds adjacent to this portion of Contractors Hill.

It is admitted that if the water could be entirely excluded the earth movements would cease, but unfortunately this is impossible. With the heavy tropical downpours the best that can be done is by drainage, to carry away what falls as rapidly as possible, but ground water can not be eliminated. So far as concerns ground water, the construction of the canal has created entirely new conditions. The old tributaries of the Chagres River and those of the Rio Grande, which formerly were natural drains, are now well above the water surface of the canal, and the canal has become the drainage channel for the country for miles on either side. Even assuming that were it possible to devise a system for getting rid of ground water, it must still exist below the surface of the water in the canal itself. The slides in question affect the banks for a considerable distance down, probably below the bottom of the canal, and if ground water be primarily the cause, then it can not be removed from the strata at which the trouble starts.

Surface drainage was maintained throughout the period of dry excavation. The adjacent country on either side of the canal was drained through the east and west diversions, which continued to act as drains, discharging their accumulated waters into the Chagres. In relieving the pressure, force pumps on barges have enabled the washing down of part of the material, as already explained. The hydraulic grader which was constructed in July, 1914, and put in commission in August, 1914, was built especially for opening channels to expedite surface drainage at various points along the line of the canal, and to maintain them, and this work has been carried on, although suspended south of the slide, due to the interruption and shut-off of the channel last fall and winter.

So long as the slides are active and the configurations of their surfaces change as rapidly as they now do, it is impracticable to open and maintain the permanent drains recommended in the moving

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areas. When equilibrium is restored, and as a means of promoting permanent stability, the drains of a permanent character should be constructed and maintained.

Drainage by tunnels has been considered in connection with data obtained since the committee's report was written, as the result of experiments suggested by the chairman of the committee, Dr. Van Hise, through whom the services of Prof. Warren J. Mead, of the University of Wisconsin, were secured, and who was assisted by Mr. Donald F. MacDonald in making tests of the rock formation in which the east and west Culebra and Cucaracha slides have occurred. I have received from Mr. MacDonald, the geologist, a brief report, hereto appended, marked "Appendix O," which states the result of the experiments, as follows:

Twenty-one average samples of the Cucaracha or sliding formation were taken from below the water level of the canal. These samples, completely saturated, contained 12.20 per cent of water by weight, or 27.8 per cent by volume. The 16 average samples taken from well above the level of ground water, where the rocks were much jointed and fractured and, therefore, perfectly drained, contained 10.60 per cent of water by weight. As shown above, 12.2 per cent of water by weight fills all of the pore spaces of the rock; therefore, 10.6 per cent by weight fills only 87 per cent of them, leaving 13 per cent of the total pore space as having been emptied by drainage and by drying. Now, 13 per cent of 27.8 per cent is 3.6 per cent of the total volume of the rock. This shows that natural drainage of the most perfect kind would not remove more than 13 per cent of the water by weight, equivalent to 3.6 per cent of the volume of the rock. However, most of the samples from the drained rock were taken very close to the surface, so that very likely they lost some of their water through drying out by the heat of the sun, for the dry season was more than a month old at the time they were collected.

These facts show that while the sliding rocks have a high percentage of pore space, the pores are mostly of capillary size and are filled with water which obeys the laws of capillarity and which can not, therefore, be drained off. These experiments definitely established that all cures by drainage which had been offered to and urged on the canal authorities were absolutely futile, and the money which might have been wasted in worthless tunnels, wells, and acres of asphalt covering, was saved for the only remedy that could bring permanent cure under the circumstances—dredging.

Before considering the suggestions that have been made for controlling or preventing the slides other than those already mentioned, it may be well to state what was attempted by the canal forces in this direction prior to the occurrence of the slides which are now active.

During the excavation of the Cut 22 slides and breaks of various extent occurred. The steps taken to protect exposed slopes by vegetation have been noted. It was believed that piles driven through the loose material into firm ground below and tied at the tops might check the movement, and this was tried at four of the slides, but without success. In some instances the piles were carried bodily down the slope; in others the underlying material, moving faster than the upper portion, inclined the piles away from the Cut, and in cases where the top surface moved faster than at the bottom, they inclined in the opposite direction. The remains of these piles can be seen at the present time in some of the areas so treated.

It was thought that in case of clay slides heavy riprap dumped on the surface would find its way through the loosened material to firm ground and check the movement, but this method was found as useless as the piling. Most of the riprap rock was taken out at the foot of the slope as the excavation proceeded. Experiments were made by concreting the face of the prism to prevent the disintegrating

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effect of the air on some of the softer rocks; this was done by use of a cement gun, by plastering the surface with cement mortar and by reinforced concrete, anchored to the side of the prism with pieces of rail. None of these methods was satisfactory or durable. The remnants of the French drains, which proved inadequate, were dug out at the bottom of the prism. The conclusion was reached that the only cure was the removal of all loosened material as it came into the Cut, and in case of breaks to relieve the weight, where possible, from the upper parts of the banks by steam shovels or sluicing operations.

In considering any method for stopping the slides some conception must be had of the enormous amount of material involved, as well as the method in which it acts. The banks at present giving trouble are from 300 feet to approximately 550 feet above sea level, and extend back 1,300 to 1,800 feet from the faces of the prism, and from these farthest points to the water surface the entire mass is broken for a depth extending at least to the bottom of the canal. As already explained, the movement is by fits and starts, sudden at first and gradually subsiding, with renewed activity after a period of quiescence. For instance, in August, 1916 a general movement occurred at the east Culebra slide and consisted of a settlement from 20 to 25 feet vertically down at the rear portion of the area affected, some 1,300 feet from the prism, by which a mass of material from the lower part was projected into the Cut beyond the center line, reducing the depth of water along this line an average of 5 feet. Because of the width of the new channel, as well as the depth, navigation was not interrupted, but some idea may be had of the enormous amount of material that must be held back by any artificial construction or device similar to those which have been proposed, and the impossibility of their construction must be recognized.

Suggestions most frequently made have been along the line of sowing vegetation and of properly draining the area. These have already been considered. To sink a number of pipes and apply steam for drying out the subsoil would be prohibitive on the score of expense, even if it were practicable. It would be impossible to drive and hold such pipes through the material in case of motion. Pipes sunk for the purpose of pumping out the water are equally impracticable and impossible. From the experiments conducted by Prof. Warren J. Mead and Mr. MacDonald all the water could not be extracted by this method. Piling the entire area at regular intervals and tying the piles to anchors driven in the firm ground can not be done, nor would it secure the result anticipated by the proposers of this scheme.

The construction of retaining walls would require the excavation of material to secure the foundations, necessitating the removal of all the material in motion, when the need for the retaining wall would no longer exist. There is no form of construction that could be designed that would hold back the superimposed mass while the excavation for the foundations was in progress. The construction of inverts to hold down the bottom of the prism is impracticable and impossible.

Wire netting rolled over the bank and held in place by stakes would not prevent the movement, but would seriously interfere with the dredges in removing the material littered up with sections of wire mesh, which would break loose with every movement of the

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slide. Consolidating the mass by injecting grout would also be impossible; the pipes could not be driven to firm ground below and the earth and rock, as it now comes into the Cut, can be much more easily handled than would be the case were this material solidified by cement.

It was suggested that the slopes and the surface of the ground adjacent to the Cut be covered with asphalt, tar, or some preparation which would exclude water from the ground. This was also proposed by a member of the committee from the National Academy of Sciences. That the committee did not include it among its recommendations seems conclusive that in its opinion it was not practicable, and no further comment seems necessary.

A number of theories have been advanced as to the cause of the difficulties, among them that there exists a huge reservoir of water within the earth and the pressure therefrom produces the slides. If this be so, the pressure being sufficient to break the ground would release the water and allow its escape. All the water that is drained from the slide areas is accounted for by the rainfall and by the escape of any ground water that the movement might liberate, and the theory is untenable. The mutual attraction of the large masses on either side of the Cut is assigned as the cause for bringing down the material, and yet another that a huge magnet that previously existed has been cut in two.

The latest theory advanced appears in an article published in the New York Sun on June 18, 1916, by the Hon. Thomas Kearns, ex United States Senator from Utah, and republished as Senate Document No. 525, Sixty-fourth Congress, first session.

He believes, "* * * that the trouble is all caused by subterranean gases formed in the earth which, when permitted to escape through certain channels or breaks in the earth, carry with them eruptive material, sometimes for a long distance, to the place of the least resistance." Coming from a man with such large practical experience, it undoubtedly carried conviction to the minds of many who read it. Since Senator Kearns's examination was more thorough than that made by Prof. Benjamin Le Roy Miller, Ph. D., it is comforting to note from his judgment also that Gold and Contractors Hills are not likely to fall into the Cut.

Senator Kearns is in error when he states, "Since it (the canal) was first opened to navigation on August 14, 1914, it has been closed and out of commission virtually two-thirds of the time." The canal was opened to traffic August 15, 1914, and up to June 18, the date of the article, the canal was closed 232 days out of 656 days, or approximately one-third of the time, instead of two-thirds, as stated.

Another error is that there was an upheaval in the bottom of the Cut at some other point than the Culebra section. At no portion of the canal has there been any upheaving except in the 2,000 feet north of Gold Hill. This upward movement first occurred when the excavation had reached elevation 175 feet above sea level, or 135 feet above the finished bottom of the canal. The upheaval, as the result of the present slides, reached an elevation of 65 feet above the water surface, or 110 feet above the bottom of the canal. In no case was there a movement at the bottom that was not preceded by a movement in the adjacent bank. The movement in the bottom ceased entirely in 1913, when the side slopes were made sufficiently flat to reduce the

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pressure exerted by them to less than that required to accomplish this upward movement. The upheaving in the bottom occurred again subsequent to the break in October, 1914, when the huge masses of the banks crowded toward the axis of the canal and disturbed the condition of pressure that existed prior to the occurrence of the slides. Part of the shoaling in the canal is undoubtedly due to the resistance to the motion of the mass at some part of the bottom, which throws part of the slide itself upward with the effect shown.

According to Senator Kearns's theory, gases forming somewhere in the interior of the earth in escaping carry with them eruptive material to the place of least resistance, or in this instance through the bottom of the canal. The breaks, which produced fissures several hundred feet deep, liberated no gas. With a pressure sufficient to accomplish such destruction of the structural formation of the rocks, apparently the gases returned to their storage to attempt later a forced passage through the bottom. We unconsciously endeavored to assist their efforts by digging away 110 feet of their container, but even this did not induce the gases to come forth; thus far there has been no evidence of escape anywhere along the line of the canal, nor has there been any upheaving movement anywhere except in the Culebra district, where the slides occur. So long as there is no movement in the banks we are able to reach bottom grade and keep it. Under the circumstances, those on the work still adhere to their belief that subterranean gases have nothing whatever to do with the movements that have occurred.

The methods proposed for securing a channel through the slides and to maintain it, adopted in October, 1915, were laid before the committee of the National Academy of Sciences, including the sluicing operations proposed on the west side, but no suggestions were made which modified the plan in any way. The various propositions made by a number of people seeking to help us in our troubles were carefully considered, as were also the theories advanced setting forth the probable causes. There were a number of letters, the writers proposing, for suitable monetary consideration, to cure the slides, but these were filed. None of the suggestions or theories tended in any way to change the plans adopted.

The dredges did their work so well that a channel was cut through the Isthmus connecting the two banks, of sufficient size to pass the small ships still tied up and awaiting transit. By April 15, 1916, a sufficiently stable channel had been secured to warrant opening the canal to navigation, and the transit of shipping has continued to date. Except at "Gibraltar" the waterway is 500 feet wide with 40-foot depth over the greater part, this depending on the movements that occur in the banks. So far as the Culebra slides are concerned, the worst is over; the intervals between movements are becoming greater and the quantities of material less; the only danger being at "Gibraltar," but it is hoped that the excavation continued along the lines contemplated will enable the widening of this section to the adopted prism line without interfering in any way with the transit of shipping. The reopening of the canal was at the beginning of the rainy season, and thus far the rainfall has been above the normal.

The recent movement at Cucaracha was, as usual, the unexpected, coming as it did from the high ground in the northeast corner of the slide area. The difficulty attending this was not a question of amount

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of material, for the dredges could cope easily with the movement on this score; the hard flinty rock was difficult to break up, and caused irritating and aggravating delays.

As predicted at the time the great Culebra movements occurred, the slides will be overcome finally and for all time, notwithstanding the calamity howlers and in spite of the disastrous predictions of the "know-it-alls."

* * * * * * *

SUPPLY DEPARTMENT.

The supply department has charge of the storage and distribution of materials and supplies for use of The Panama Canal and its employees; for other departments of the United States on the Isthmus and their employees; for vessels of the United States, and for other vessels when desired by them. It operates commissaries, hotels, and messes; has charge of the maintenance of buildings and the assignment of quarters and care of grounds. It recruits and distributes unskilled labor and is in charge of all animal transportation. The department continued in charge of Maj. W. R. Grove, United States Army.

The labor force remained practically intact during the greater part of the year, because of the terminal construction and the dredging in Gaillard Cut. In May, due to the near completion of the dry dock and coaling stations the force was reduced, the force report showing a, total of 23,462 employed on June 30, 1916, as compared with 26,897 employed on June 30, 1915, or a net reduction of 3,435. There was a surplus of labor throughout the year in all grades. The repatriation of those for whom it was impossible to find work was continued, and 1,661 took advantage of it, at a cost to the canal of $33,919.65. No contract laborers were recruited.

Quarters.—The village of Corozal was abandoned effective December 1, 1915, and the houses occupied by canal employees turned over to the Army. The transfer of the gold employees and their families to the Ancon-Balboa district resulted in a congestion in this district, the number of applications on file for quarters increasing to 379 on June 30, 1916, as compared with 274 on June 30, 1915. On June 30, 1916, there were 850 applications for family quarters on file, including 114 for families occupying regular or nonhousekeeping family quarters at stations other than those at which applications were filed.

Additional quarters were completed and occupied as follows:

Fifteen 4-family, seven 2-family, twelve 1-family, all frame; two 2-family, ten 4-family, concrete; one special bachelor apartment, of concrete; one special bachelor apartment, frame.

Corrals.—There was no decrease in the demand for wagon transportation, all animals being worked to their full capacity. Due to improved road conditions, particularly on the Pacific terminal, motor trucks were substituted for animal-drawn wagons, both for delivery service and trucking. Animals dying or destroyed during the year amounted to 37; animals surveyed and sold, 3; and animals in corrals at the close of the fiscal year totaled 519—horses 118, mules 390, and ponies 11.

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Material and supplies.—A total of 1,776 requisitions were prepared and forwarded to the general purchasing officer, as compared with 1,428 during the previous year. The total value of material received was $9,945,390.32, as compared with $8,018,418.03 for the previous year, the increase being largely due to the increased prices of material. The local purchases amounted to $1,569,812.15, as compared with $1,360,469.71 for the previous fiscal year.

There was a general increase in the price of many of the staple articles of material, especially iron and steel; the average price of steel and iron on hand June 30, 1915, was $1.63 per cwt., as compared with $2.17 per cwt. on June 30, 1916.

All storehouse operations were placed under the supervision of a general storekeeper, comprising the storehouses at Balboa, Paraiso, the obsolete stores at Mount Hope and at the dry dock, Cristobal. On June 30, 1916, the value of material in stock was $4,198,392.34, as against $2,925,332.91 on June 30, 1915, not including the stock of obsolete and retired material and equipment on hand at the Mount Hope store. The increase in the value of the stock material was due, in large measure, to an increase in the purchase price of a large number of items. The consumption of cement amounted to 567,024 barrels.

Scrap.—The policy of concentrating at the obsolete storehouse at Mount Hope all surplus, obsolete, and scrap material and equipment was continued. The sales of this material continued to be made, under authority of the sundry civil act of March 3, 1915, and the Executive order of May 12, 1915.

The American scrap operations at the obsolete store show on hand 48,909 net tons, of which 21,249 were received during the year. There were shipped to the United States 10,156 net tons, and issued locally 5,969 net tons, or a total of 16,125, leaving on hand 32,784 net tons. Under advertisements contracts were made for the sale of 9,210 net tons of miscellaneous scrap to the Federal Iron & Steel Co., of Newark, N. J., for $31,767.56, and 6,000 gross tons of scrap rail to the David Kaufman & Sons Co., Elizabethport, N. J., for $48,280. Under a later circular, 13,310 net tons of miscellaneous scrap were sold to the Federal Iron & Steel Co. for $78,333.98, 890 net tons of miscellaneous scrap to the David Kaufman & Sons Co. for $4,147.20; and 810 net tons to N. Samuels & Sons Co., of New York, for $3,936.50. All of the material sold under the first circular was paid for in full by the purchasers, but a large part of it remains on the Isthmus. About 890 tons of material under the second circular has been paid for, but not removed from the Isthmus. The contractors are paying storage on all the material sold but not yet removed.

Material to the value of $220,116.40 was sold from the storehouses to the United States Army organization stationed on the Isthmus. The principal items consisted of forage, lumber, building material, and general hardware. There was an increase in value of supplies sold to steamships in transit through the canal and those touching at the two terminals. The value of supplies sold was $70,918.22, representing miscellaneous ship supplies for 860 steamers.

Surplus and obsolete material with an appraised valuation of $222,735.24 was forwarded to the United States for sale. Local credit and cash sales of obsolete material and equipment amounted

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to $205,473.94, and obsolete material to the value of $292,994.89 was issued and transferred from the obsolete store to divisions of the canal. There was on hand on June 30, 1916, surplus and obsolete material with an appraised value of $665,396.40.

Fuel-oil plants and storage.—The supply department took over the construction of the Balboa and Mount Hope fuel-oil plants on September 1, 1915. The Panama Canal received during the year 676,497 barrels, of which 579,389 were stored in its tanks at Balboa and the balance, 97,108 barrels, at Mount Hope. Of the amount stored, 517,191 barrels were drawn from Balboa and 108,746 from Mount Hope for use by The Panama Canal. To outside parties 48,427 barrels were sold from Balboa, and 12,093 barrels from Mount Hope. Oil handled for individuals and companies through the oil pumping plants aggregated 893,165 barrels, and the total amount of fuel oil handled through the Balboa and Mount Hope oil plants was 2,256,119 barrels.

Gasoline.—A new storage tank, with a capacity of 200,000 gallons, was completed September 9 at Balboa, and the first cargo of bulk gasoline of 102,476 gallons was received February 18, 1916. An additional cargo of 100,550 gallons was received March 26, 1916, and emptied into tank No. 31. The installation of the "Martini Hueneke" system for protecting gasoline in storage against accidental ignition of its contents was completed at storage tank No. 31 on June 28. This system provides and maintains a blanket of inert noninflammable gas in the tank above the surface of the gasoline. Storage tank No. 27 at Mount Hope, with a capacity of 200,000 gallons, was completed December 15, 1915. Up to the end of the year it had not been considered necessary to order a supply of gasoline for the Atlantic side. The total amount sold to outside parties was 199,280 gallons, and used by The Panama Canal 362,371 gallons.

Subsistence.—The supply department continued the operation of the Washington, Tivoli, and Aspinwall Hotels, also the line restaurants and laborers' messes. The Hotel Washington is owned by the Panama Railroad Company and the remainder by The Panama Canal. The revenues of the Tivoli and Washington showed an increase over the previous year of $33,310.26.

The Tivoli Hotel showed a net profit of $24,929.85, compared with a loss of $1,974.16 for last year. Had a charge been made for building repairs a net profit of $17,007.51 would have been shown. While some of this increase may be due to the tourist traffic, the larger part is due to the interest of American business men in Panama and South America. It is believed that this element of the business will increase and that there will be a demand on the hotel facilities in the future for accommodations for representatives of American business enterprises.

The existing structure (frame) is badly ant-eaten and rotted, so that extensive repairs will have to be made or a new building constructed, and I am including in the estimates for the next fiscal year the sum necessary for building a new structure of reinforced concrete.

The experiment with the Hotel Aspinwall at Taboga was continued, but employees availed themselves of the opportunity so little that on July 1, 1916, the hotel was closed, the loss amounting to $4,554.09. The hotel at Corozal was closed when the village was vacated and turned over to the Army.

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The net revenue for the year from restaurants and messes was $661,017.90, while the total cost of operations was $648,565.39, resulting in a profit of $12,452.51. Had the charges for building repairs, fuel, light, etc., been made, there would have been a net loss of $3,727.68. No charge for equipment has been made, but is absorbed by allotments from appropriations.

Congress appropriated money for rebuilding the restaurants, substituting concrete and tile construction with equipment of glass and metal from the old frame structures. This will enable the hotels to be kept vermin-proof and thoroughly sanitary. The cafeteria system has so completely met the conditions on the Canal Zone that it will be extended to the Ancon restaurant, which has been maintained heretofore solely on the à la carte basis.

Mount Hope printing plant.—The value of the stock on hand at the close of the year was $53,407.02, as against $45,198.38 for the preceding year. To the equipment were added five Chandler & Price platen presses with motors for operating, and various other small items, at a total cost of $1,960.30. The value of the equipment on hand is $37,897.57.

The commissaries of the Panama Railroad were operated by the supply department. On account of the high cost of beef purchased in the United States the purchase of local cattle was continued, ranges provided for fattening, and an abattoir constructed. During the year the abattoir was enlarged and a fattening house constructed, which is being operated in connection with it. A total of 7,762 cattle were killed and 3,843,377 pounds of dressed beef turned out, the value of which amounted to $446,682.69.

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ACCOUNTING DEPARTMENT.

The organization of the department was unchanged during the year. Mr. H. A. A. Smith, as auditor, continued at the head of the department, and immediately in charge of the division of auditing and accounting, Mr. John H. McLean, as paymaster, and Mr. T. L. Clear, as collector. The office of the department in the Washington office was under Judge B. F. Harrah, as assistant auditor, with Mr. Virgil C. Miller, as disbursing clerk.

The paymaster disbursed $26,933,528.35, of which $8,694,110.12 was on account of the Panama Railroad Company. Collections made on pay-rolls, mainly on account of coupon books and meal tickets, amounted to $2,709,743.60. Of this amount $2,556,093.08 were disbursed directly by the paymaster, and the balance transferred to the collector's account. The Commercial National Bank of Washington, D. C., established a branch on the Isthmus, which was made a Government depository as well as a fiscal agent.

Collections made and repaid to appropriations amounted to $7,220,622.65. The sum of $2,756,764.83 was collected and deposited as miscellaneous receipts. Under the provisions of section 3 of the sundry civil act of March 3, 1915, the Comptroller of the Treasury has detailed employees, one from the office of the auditor, War Department, and the other from the office of the Comptroller of the Treasury, to make the required semiannual examination of the collection accounts on the Isthmus.

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A number of small claims for damages to vessels passing through the locks were made, in accordance with the provision of section 5 of the Panama Canal act, and $1,578.65 were paid in settlement of 13 claims.

Appropriations by Congress for the canal and the fortifications thereof aggregated $415,985,149.02, including the appropriations made July 1, 1916. Of this amount $19,224,873.30 were for fortifications; $1,000,000 to cover the four annual payments of $250,000 each to the Republic of Panama, and $6,000 for the expense of presenting the steam launch *Louise* to the French Government. In addition, $7,050,000 were appropriated for operation and maintenance, sanitation, and civil government for the fiscal year 1917, and $6,440,000 for the fiscal year 1916, while $4,289,159 were charged against the operation and maintenance of the canal for the year ending June 30, 1915. Of the stock of material and supplies on hand $2,225,000 will be used and charged against the operation and maintenance of the canal. Three million four hundred thousand dollars were appropriated for colliers, $800,000 for Dock No. 6, Cristobal, and $600,000 for new boilers in the steamships *Ancon* and *Cristobal*, which, deducted from the total sum appropriated, leaves $370,950,116.72, or a balance of $4,250,783.28 available for appropriation within the limit of cost of the canal and the authorized bond issue.

Up to June 30, 1916, the miscellaneous receipts covered into the Treasury, exclusive of tolls and Canal Zone revenues, amounted to $6,832,144.14, so that the cost of the canal to date, so far as construction is concerned, amounts to $364,117,972.58. This takes no account of receipts from future sales of construction material and equipment, payments to be made by the Republic of Panama for the sums expended on account of waterworks, sewers, and pavements in the terminal cities, and the equipment transferred to the Alaskan Engineering Commission and the State Department. The estimated value of the items so transferred aggregated $7,155,978.80. In addition to the construction of the canal, covered by the estimates on which the bond issue was authorized, a dry dock, two coaling stations, terminal piers, and wharves have been built, as well as a new hospital at Colon and new building for the Ancon Hospital, none of which was contemplated. Furthermore, injury claims amounting to more than $1,000,000 were paid, and not provided for in the estimates of 1908.

Under the agreement with the Republic of Panama, which requires the reimbursement to the United States for expenditures for waterworks, sewers, and pavements in the terminal cities, the expenditures to June 30, 1916, totaled $3,853,576.15. The United States has been reimbursed, or is immediately due $1,789,895.11, leaving a balance of $2,063,681.04 payable in installments during the next 44 years for work done in the two cities.

There were expended in construction work $8,844,125.26, the principal items of which were the east breakwater at Colon, $1,238,611.68; dredging from Gatun to Pedro Miguel, $104,738.79; aids to navigation, $43,828.20, including Punta Mala light $19,048.63, Bona Island light $2,974.52, Taboguilla light $3,601.76, mooring station at Paraiso $3,519.30, and Sosa Hill station $5,214.56. For the Atlantic terminal $1,551,747.62 were expended for the Cristobal coaling plant and $42,771.88 for the fuel-oil plant. At the Pacific terminal $3,062,379.61 were expended for the dry dock and $953,332.82 for dredging

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the inner harbor; for the coaling station, $920,226.68; Balboa shops, $232,418.97; fuel-oil plant, $58,068.42; for permanent townsites, $278,011.34, and for permanent buildings, $1,019,089.82; at Mount Hope for sanitary fill, $22,089.62, and for the construction of roads, not including townsites, $76,877.03.

For maintenance and operation $6,999,750.15 were expended, as against $4,123,128.09 last year. The main item of expense was $3,513,350.06 for dredging 12,430,209 cubic yards of material due to the slides, while during the previous year there were expended $1,633,030.06 for the removal of 4,710,566 cubic yards of material from the same causes.

The tolls collected amounted to $2,399,830.42, as against $4,343,383.69 last year. Accompanying the detailed report of the auditor is a statement showing the tolls collected from each ship and the amounts that would have been collected under the Panama Canal rules. The business operations show a profit of $11,898.44, as against the loss of $56,400.78 last year.

Under claims for injuries and deaths, 2,349 accidental injuries and 39 accidental deaths of Panama Canal employees occurred in connection with their work. Of the injuries reported, claims in 741 cases were approved and 35 disapproved. Fourteen death claims were approved and 6 were disapproved, while 19 cases were pending at the end of the year. On account of injuries to employees $32,341.85 were allowed, and on account of deaths $33,321.07 To employees of the Panama Railroad $9,056.66 were allowed for injuries, and $3,330.24 were allowed on account of deaths. The total amount paid by The Panama Canal as compensation on account of injuries and deaths of employees since August 1, 1908, the effective date of the act of May 30, 1908, was $1,338,653.69.

Coupon books to the value of $3,250,132.50 were issued during the year to employees on pay-roll deduction. Commissary and hotel coupon books to the value of $1,615,903.80 were sold for cash. Meal tickets to the value of $126,397.87 were issued to silver employees.

The accounts of all officials and employees charged with the collection, disbursement, or the custody of Panama Canal and Panama Railroad funds, or with funds which were semipublic, are examined at frequent and irregular periods, as contemplated by the regulations.

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EXECUTIVE DEPARTMENT.

The department embraces the various civil functions pertaining to the government of the Canal Zone, the courts, the offices of the special attorney and the district attorney, and the Canal Record. It is in charge of Mr. C. A. McIlvaine, executive secretary, acting under the Governor. The organization of the executive department and of the executive office was continued along the lines set forth in the annual report for 1915.

DIVISION OF CIVIL AFFAIRS.

The work of the customs, posts, local licensing, administration of estates of deceased employees, shipping commissioner, and publication of the weekly bulletin, the Canal Record, was carried on by this division.

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Shipping commissioner.—The shipping commissioner exercised practically the same powers as are exercised by American consuls in foreign ports. As this power was questioned Congress was requested to enact legislation making it definite, and provision was made in the act approved August 21, 1916, accomplishing the purpose. In the same connection, the diplomatic and consular appropriation act, which became a law on July 1, included The Panama Canal Zone in the countries to which relief and protection of American seamen would be extended.

Customs.—On September 15 the Government of Panama was notified that the existing Chinese exclusion laws would not be held to apply to Chinese crews of vessels. Customs officers were directed to continue checking the Chinese crews, but to make no further effort to prevent them from coming ashore in the Canal Zone.

The act of August 21, 1916, confers upon the President authority to make rules and regulations touching the right of persons to enter the Canal Zone, and besides other things, to require a ship bringing an undesirable to the Canal Zone to return him to the place of origin.

During the year 395 prohibited aliens arrived at Balboa and 158 at Cristobal, in transit to the Republic of Panama and other countries. By authority of the Panaman officials 343 were allowed to disembark, 1 escaped, 3 were transferred to their vessels or returned to the port of embarkation, and 206 were transferred passengers.

The customs bureau and police division are in possession of information indicating that large quantities of opium are smuggled through the Canal Zone into the Republic of Panama and that a considerable portion is later smuggled into the United States. Every effort has been made to break it up, but the traffic is so profitable that it can only be stopped by assessing heavy fines and giving long prison sentences. The penalty for smuggling opium is a maximum fine of $5,000 and a minimum fine of $50 and imprisonment not exceeding two years, or both such fine and imprisonment. There were 38 arrests of persons and vessels on this charge, of whom 7 were acquitted. In the majority of cases found guilty the minimum fine only was assessed. The largest fine assessed any individual was $100 and the heaviest fine against a ship was $190. It is difficult to cope with the problem when such penalties are inflicted.

The total number of vessels entered at the canal ports was 2,130, and the total number of vessels cleared was 2,123. There were 2,631 seamen shipped on American vessels and 2,475 seamen discharged.

Licenses and taxes.—Licenses and permits were issued to the number of 2,569, of which 1,078 were for motor vehicles. Motor-vehicle license fees in the Canal Zone have been considered excessive, and by the act of August 21, 1916, the President is given power, among other things, to make rules for regulating licenses and taxing the use or operation of all self-propelled vehicles using public highways in the Canal Zone. Under this law the license fees may be reduced.

Postal service.—Postal receipts for 1916 were $1,060.90 more than the previous year; the expenses were $9,739.19 less. The deficit was $44,527.14, as compared with $55,327.23 in 1915. In connection with this deficit it must be remembered that the postal service is still burdened with a subsidy to the Panaman Government equivalent to 40 per cent of its total stamp sales, amounting to $27,207.86 in 1916, and that the service has not been allowed credit in the

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accounts for interest earned by money-order and postal-savings funds deposited in banks, amounting in 1916 to about $39,000. This latter handicap, however, is removed by the act of August 21, 1916.

Deposit money orders issued had a total value of $1,101,190 and payments of deposit money orders during the same period aggregated $1,103,340, leaving a balance on deposit, June 30, 1916, of $350,650. These deposit money orders form the postal savings system on the Canal Zone and draw no interest. Under the act of August 21, 1916, however, interest will be allowed at the rate of 2 per cent.

Mail addressed to ships transiting the canal is sent to the office of the captain of the port at which the ship is due to arrive first, and is delivered to the ship by the boarding officer of the customs service, who is also prepared to sell stamps, accept letters for registry, as well as ordinary mail, and furnishes applications for both domestic and international money orders, taking the money from the remitter and issuing a receipt.

At present the service is confronted with the serious problem of the rifling of registered mail dispatched to the different islands of the West Indies, and this matter has become so serious that it is necessary to forward all such mail through the New York exchange post office. The matter is under investigation.

In June, 1915, the limit of weight of mail matter of the third and fourth classes was raised from 11 to 20 pounds, to conform with the parcel post weights in effect in the United States.

Canal Record.—The Canal Record is devoted to the publication of shipping news, statistics of traffic, Executive orders, official advertisements, notices, and circulars. The cost of publication was reduced from $13,585.15 in 1915 to $10,806.28 in 1916. Collections on account of subscriptions and the sale of extra copies and bound volumes amounted to $561.50.

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HEALTH DEPARTMENT.

The health department is charged with the care of the sick and injured of the Canal Zone, the prevention of disease in the Canal Zone and the cities of Panama and Colon, street cleaning and garbage removal in the latter cities, and all matters relating to quarantine. The department was in charge of Lieut. Col. Charles F. Mason, United States Army, until June 7, 1916, when he was relieved at his own request on account of ill health from long service in the Tropics. He was succeeded by Lieut. Col. D. C. Howard, United States Army, who was assigned to duty as chief health officer on June 22, 1916.

No cases of yellow fever, smallpox or plague originated on the Isthmus during the year. Four cases of yellow fever were received at Balboa quarantine, all from Buenaventura, Colombia. No secondary cases developed.

The health of employees continued good. The total admission rate to hospitals and quarters was 301.09, compared with 337.21 for 1915. Rates are based on the annual rate per 1,000 employees. The total admission rate to hospitals only for the year was 164.78, compared with 204.18 for 1915; and for disease alone, 125.88 as compared with 156.81 for 1915. The total death rate for 1916 was 6.65, as compared with 5.78 for 1915, and the death rate from disease 4.98

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as against 3.61 for 1915. Conditions with regard to malaria are improving steadily each year. The total admission rate for malaria to hospitals and quarters was 34, as compared with 66.60 for 1915, a reduction of 48 per cent from the rate of the previous year. The admission rate for typhoid fever was 0.18, as against 0.19 for 1915, and the death rate 0.12, as compared with 0.03 for 1915. The admission rate for dysentery was 0.80 as compared with 0.85 for 1915; and the death rate was 0.09 as compared with 0.05 for the previous year. The death rate for pneumonia was 1.16 as compared with 0.58 for 1915.

In the Canal Zone the death rate from disease was 11.02 as compared with 11.77 for 1915. In Panama the death rate was 27.27 as compared with 30.74 for the preceding year. In Colon the rate was 24.51 as compared with 21.25 for the previous year.

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PANAMA.

The rapid growth of the city eastward toward the Sabanas, away from the Canal Zone, has necessitated extending anti-mosquito work in that direction, including the construction and maintenance of extensive additions to the ditching. Up to the present time the cost of this work has been borne by the Government of Panama and the Panama Land & Development Co.

The Panama Railroad Company completed its public stables on B Street, which were constructed so as to limit fly breeding and rat infestation. This is one of the most important sanitary accomplishments during the year, and made possible the elimination of a large number of dirty, ill-kept stables in the most congested portions of the city.

An average of 5,000 loads of garbage of all kinds was collected per month, approximating 9,000 cubic yards, including house garbage, rubbish, refuse, and stable manure, all of which was hauled to the public dump for disposal. The erection of a modern incinerating plant for the destruction of garbage and refuse is an urgent necessity. Another necessity is the installation of a compost pit for treating manure with a view to making it available for fertilizer and at the same time obviating the possibility of fly breeding.

COLON.

There has been a great improvement resulting from anti-malarial measures. The total number of cases reported for the last six months of the present fiscal year was 52, as compared with 99 for the last six months of the preceding fiscal year. The reduction was secured through the complete elimination of anopheles breeding on Manzanillo Island, in Colon and Cristobal proper, by a combination of ditching and filling certain areas previously characterized by persistent breeding, as well as by increasing the number of weekly inspections of each area, and oiling when necessary.

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SANITATION.

The work of this division continued along the usual lines, covering anti-malarial work, the destruction of rats, the inspection of all residential districts in the Canal Zone, and the inauguration of measures for the correction of insanitary conditions wherever practicable. The experience gained has demonstrated that extensive work must be maintained constantly in and around residential districts to protect against malaria, but as the transition period from construction to operation advances there results greater permanency in locations in which employees work and have their homes, and work of a permanent nature can be done, thereby reducing the cost of maintenance. The increased number of ships at the terminal ports increases the opportunities for contamination of the Canal Zone by plague-infected rats. Men are employed to kill rats by all means possible, especially along the water fronts.

The number of sanitary districts remained the same as last year until Corozal was turned over to the military forces, when the inspection and upkeep of one-third of the district was assumed by the troops, and the remaining two-thirds added to Ancon, the inspector for which was allowed an assistant.

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FORTIFICATIONS.

Work was continued during the year on the gun and mortar batteries on the range-finding and fire-control systems, on the mounting of ordnance, on the installation of searchlights, on maintenance of all completed work, and of clearings and trails connected with the fortifications.

The work was in charge of Lieut. Creswell Garlington, United States Army, until November 1, 1915, when the fortification division was abolished and added as a section to the work of the engineer of maintenance under Lieut. Col. Jay J. Morrow, assistant to the engineer of maintenance, with Lieut. Garlington as assistant engineer.

During the fiscal year a part of the work of maintenance of clearings and trails was transferred to the Commanding General, United States troops, Panama Canal Zone, and at the close of the fiscal year all fortification work was transferred to Maj. Clarence O. Sherrill, Corps of Engineers, Canal Zone district engineer officer, reporting to the Chief of Engineers, United States Army.

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Respectfully submitted.

GEO. W. GOETHALS,
Governor, The Panama Canal.

Hon. NEWTON D. BAKER,
Secretary of War, Washington, D. C.

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REPORT OF THE ATTORNEY GENERAL.

DEPARTMENT OF JUSTICE,
Washington, D. C., December 4, 1916.

To the Senate and House of Representatives of the United States of America in Congress assembled:

I have the honor to submit a report of the business of the Department of Justice during the fiscal year ended June 30, 1916, together with some recommendations for new legislation.

RECOMMENDATIONS.

I renew the following recommendations contained in my last annual report:

1. AMENDMENT OF COMMODITIES CLAUSE OF INTERSTATE COMMERCE ACT.

In *United States* v. *Delaware & Hudson Co.* (213 U. S., 366), the Supreme Court construed the commodities clause as prohibiting a railroad from transporting articles produced, mined, or purchased by it only where it has an interest in the articles in a legal or equitable sense at the time of transportation. It further held that a railroad does not necessarily have an interest in a legal or equitable sense in articles produced, mined, or purchased by a bona fide corporation of which the railroad is a stockholder. In a later case (*United States* v. *Lehigh Valley Railroad Co.*, 220 U. S., 257) the court held that if the corporation owning the articles transported by the railroad was so identified with the railroad as in fact to be but an arm of the railroad, then the railroad would have an interest in the articles in the sense of the statute. The following plan was devised to meet the requirements of the statute as thus construed:

A railroad engaged, say, in mining coal, either directly or indirectly through a controlled corporation which is but a part of itself, will organize a new corporation, the stock of which is distributed ratably amongst the stockholders of the railroad and the management of which will be dominated by officers of the railroad. Thereupon the railroad will sell to the new corporation at the mouth of the mines its production of coal under a contract which puts the new corporation largely, if not completely, within the power of the railroad.

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This plan was challenged in the case of *United States* v. *The Delaware, Lackawanna & Western Railroad Co. and The Delaware, Lackawanna & Western Coal Co.* The Government lost in the district court, but an appeal was taken to the Supreme Court, which, in an opinion handed down on June 21, 1915, unanimously reversed the decision of the lower court (238 U. S., 516).

I stated in a previous report that even should the Government be successful in this case in the Supreme Court, the commodities clause would still fall short of accomplishing its purpose—the divorce of transportation from production. This is not less evident now that the case has, in fact, been decided in favor of the Government, since railroads are still able to claim that the clause does not prohibit them from engaging in production along their lines, provided only that they sell the articles produced before transporting them.

I therefore urge an amendment which will prohibit a railroad from transporting in interstate commerce articles which it manufactured or produced, or which were manufactured or produced by any corporation controlled by it or affiliated with it by having the same controlling stockholders, irrespective of whether such railroad or such controlled or affiliated corporation has an interest in the articles at the time of transportation. It is also necessary, if transportation and production are to be completely divorced, that Congress prohibit any railroad owned or controlled by a producing or trading corporation, and not operated merely as a plant facility, from transporting in interstate commerce articles produced or owned by such corporation.

A bill to carry out this recommendation was introduced in the Sixty-third Congress, third session, by the chairman of the House Committee on Interstate Commerce (H. R. 20470).

2. Arrest and Removal of Persons Indicted for Crime.

In its provision for the removal of indicted persons to the districts where the indictments were returned the Federal criminal procedure is grievously defective. A person indicted in a particular district, if found in another district, may successfully resist removal if a United States commissioner in the district where he is found is willing to find lack of probable cause; or he may give bond to appear, fail to do so, and, upon forfeiture of his bond and further removal proceedings, give a second bond, and so on indefinitely. At present several persons indicted for grave felonies are thus enjoying absolute asylum within this Union and practical immunity from prosecution.

It is notorious that removal proceedings are more cumbersome, expensive, and uncertain than extradition proceedings.

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As the criminal process of a State after indictment runs to any place within the State, so should a Federal warrant run to any part of the United States after indictment, but with privilege to the defendant to give bail.

This defect in the Federal criminal procedure has been frequently pointed out by my predecessors:

By Attorney General Wickersham in his report for 1909, page 20.

By Attorney General Bonaparte in his report for 1908, page 10.

By Attorney General Bonaparte in his report for 1907, volume 1, pages 5–6.

By Attorney General Moody in his report for 1906, pages 3–4.

By Attorney General Moody in his report for 1905, pages 6–10.

By Attorney General Moody in his report for 1904, pages 4–11.

I therefore advise that section 1014 of the Revised Statutes be amended so that the judge into whose court an indictment is returned may consider the testimony introduced before the grand jury and enter an order making the warrant of arrest run to all parts of the United States. A bill to this end has heretofore been introduced. (H. R. 10769, 64th Cong., 1st sess.)

3. Appointment of Additional Judges Where Incumbent is Over 70 Years of Age.

Judges of United States courts who have attained the age of 70 and have served 10 years may retire upon full pay. In the past many judges have availed themselves of this privilege. Some, however, have remained upon the bench long beyond the time when they were capable of adequately discharging their duties, and in consequence the administration of justice has suffered. The power of Congress to correct this condition is limited by the provision of the Constitution that judges shall hold their offices during good behavior.

I renew the suggestion made by my predecessor that Congress pass an act providing that when any judge of a Federal court below the Supreme Court fails to avail himself of the privilege of retiring now granted by law, the President be authorized, with the advice and consent of the Senate, to appoint another judge to preside over the affairs of the court and have precedence over the older one. This will insure at all times the presence of a judge sufficiently active to discharge promptly and adequately the duties of the court. A bill to carry out this recommendation was introduced in the Sixty-fourth Congress, first session. (S. 706.)

4. Preparation and Printing of Records and Fees for Same.

There is great need for legislation with reference to the preparation and printing of the records of cases in the appellate courts. The act of February 13, 1911 (36 Stat., 901), entitled "An act to diminish

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the expense of proceedings on appeal and writ of error or of certiorari," has led to confusion. The Supreme Court should be empowered to promulgate uniform rules governing the preparation and printing of records for all of the appellate courts of the United States and to fix the fees and charges in connection therewith.

5. Killing a Federal Officer.

Under section 140 of the Federal Penal Code it is a crime to assault, beat, or wound an officer of the United States engaged in serving or executing process, but there is no Federal law making it a crime to kill an officer under these circumstances. It is suggested that section 140 of the Penal Code be amended so as to make it a crime against the United States to kill an officer under the circumstances therein mentioned. A bill to this effect has heretofore been introduced (S. 6221, 64th Cong., 1st sess.).

6. Revision of Juvenile Court Laws.

Impressed with the importance of considering the question of the amendment, revision, and codification of the laws in force in the District of Columbia pertaining to children and to the jurisdiction, practice, and procedure of the Juvenile Court of the District, my predecessor, on March 6, 1914, appointed a committee, composed of Bernard Flexner, of Chicago, chairman; Miss Julia C. Lathrop, chief of the Children's Bureau, Department of Labor; Rev. William J. Kerby, professor of sociology, Catholic University of America, Washington, D. C.; Walter C. Clephane, Washington, D. C.; and William H. Baldwin, Washington, D. C., to study the present laws and needs of the District in this particular and to advise the Attorney General, accompanying its report with a draft of a code adequate to give the District satisfactory laws upon these subjects, and which might be used as a general model.

This committee, acting without compensation, devoted a very large amount of time to the problem and submitted to me a report thereon, including drafts of two bills intended to carry out their recommendations. A copy of this report was included in my annual report of last year as Exhibit 29. I am of the opinion that the present juvenile laws of the District of Columbia are antiquated and earnestly recommend the passage of legislation substantially as presented by this committee. A bill to carry out this recommendation was introduced in the Sixty-fourth Congress, first session (H. R. 8348).

7. Sending Threatening Letters.

Under existing law it is no offense to send threatening letters through the mails unless in furtherance of a scheme to defraud or

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as a means of accomplishing extortion. Letters threatening injury to life or property may be sent with impunity. Obviously this should not be so.

8. Thefts of Government Property.

Section 36 of the Federal Penal Code provides that thefts of property of the United States furnished for the military or naval service shall be punished as prescribed in section 35. That section prescribes two different punishments. The punishment for its violation being thus uncertain, section 36 is of little force. Obviously the uncertainty should be removed.

9. The Statute of Limitation in Bankruptcy Cases.

Criminal prosecutions under the bankruptcy act must be brought within one year as the law now stands. This seems too short a period. Unquestionably it has defeated justice in some cases. To illustrate, most of the cases of embezzlement by trustees in bankruptcy have been disclosed by the periodical examinations of the offices of referees in bankruptcy conducted by the Bureau of Investigation of this department. Speaking generally, it has never been found possible to conduct such investigations oftener than once every two years, except, of course, where there was reason to suspect wrongdoing. It frequently happens, therefore, that by the time such embezzlements are discovered the statute of limitation has barred prosecution. The period of limitation in such cases should be extended to three years.

10. Presence of Stenographers Before Grand Juries.

There is a division of opinion in the circuit courts of appeals and district courts on the question as to the lawfulness of having a stenographer present to report the proceedings of grand juries. In order that all doubts may be removed, the presence of a stenographer in the grand-jury room for the purpose of reporting the proceedings should be specifically authorized by statute. A bill to that end was introduced in the first session of the Sixty-fourth Congress (S. 4784).

11. Reappraisements in Customs Cases.

I recommend that the law be amended so that a party dissatisfied with the appraisement made by a local appraiser may have a reappraisement before a single general appraiser with the right of appeal on the law and the facts to a board of three general appraisers, the appeal to be heard on the record made before the single general appraiser. This procedure, if authorized, by avoiding two separate trials as now, would save the time of witnesses, importers,

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attorneys, and general appraisers, and at the same time protect the rights of both the Government and the importers.

Again, under the law as it now stands, the importer may by an indirect method appeal to the Court of Customs Appeals from the decisions of the general appraisers on questions of law involved in reappraisement proceedings, whereas the Government has no appeal. I recommend an amendment which would permit either side to appeal directly from the general appraisers to the Court of Customs Appeals on questions of law involved in reappraisement proceedings.

12. Compensation of Clerks of Courts.

It has been recommended heretofore that the clerks of the United States district courts be paid a fixed salary, regardless of fees. I concur in this recommendation, since I believe it will accomplish a saving, will increase the efficiency of the clerks' offices, and relieve the Government of the necessity of passing upon a variety of questions which under the present system arise in connection with the auditing of the accounts of clerks. A bill to this effect was introduced in the Sixty-fourth Congress, first session (S. 3055).

I also submit the following additional recommendations:

1. Changes in Laws Affecting Neutrality and Foreign Relations.

From the experience of this department and of the State Department during the past three years in the administration of law in connection with the relations of this country with Mexico and with the problems arising out of the European war, it has become clear that there is urgent need of a revision of the statute law bearing on our international relations.

Many acts committed in the United States in serious violation of its sovereignty and against its peace and the safety of its citizens are not now punishable by any Federal criminal law; others are punishable only under unsatisfactory statutes passed in relation to conditions altogether different from those now prevailing.

The present laws relating to neutrality are clearly defective. In some cases no statutory provision whatever is made for the observance of obligations imperatively imposed by international law upon the United States; in other cases inadequate provision is made.

In my opinion, the passage of the following new legislation is required for the protection of the United States and its citizens and for the fulfillment of the duty owed by the United States to other nations with which it is at peace.

The general recommendations now made have been submitted to the State Department and have been concurred in by the Secretary

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of State and by the Joint State and Navy Neutrality Board. On June 3, 1916, I addressed letters to the chairmen of the following congressional committees: Committee on Foreign Relations of the Senate, Committee on the Judiciary of the Senate, Committee on Foreign Affairs of the House of Representatives, Committee on the Judiciary of the House of Representatives, transmitting a printed memorandum of these recommendations, accompanied by drafts of proposed bills to carry them out. I can not too strongly urge the immediate enactment of these bills.

1. An act making it a crime willfully to interfere with or prevent, or to attempt to interfere with or prevent, or to conspire to interfere with or prevent, the exportation to foreign countries of articles from the United States by injury to or destruction of such articles or of the buildings or places in which they are stored, produced, or manufactured, or of the instrumentalities of transportation used or intended to be used in the course of such exportation, or by means of any other violence or threat of violence to person or property.

NOTE.—The activities of aliens and foreign sympathizing citizens in connection with the prevention of foreign trade can not at present be reached by any Federal law unless the evidence should be strong enough to bring them within the reach of the laws against restraint of trade or interstate transportation of explosives. Federal legislation is clearly needed. Such legislation is constitutional. The Supreme Court has held in the broadest terms that the power of Congress to regulate commerce with foreign nations is plenary. It may exclude any article from import. It may prescribe an embargo, complete or partial, and with such limitations as it deems best. It may, therefore, punish any regulation or attempted regulation of the export trade, or interference therewith, by private individuals; and it may penalize any attempt of individuals to interfere with the freedom of the export trade, whether such attempt is made by a contract or by a tort, by agreement of minds, or by violence. See, amongst other cases, Weber *v.* Freed, 239 U. S. 325; Northern Securities Co. *v.* United States, 193 U. S. 332; United States *v.* Moline, 82 Fed. 594; Ex parte Byers, 32 Fed. 405; 30 Fed. Cases, No. 18256; 25 Fed. Cases, No. 14832; 24 Fed. Cases, No. 14330.

2. An act making it a crime to set fire to any vessel engaged in foreign commerce of the United States, or her cargo, or to tamper with the motive power or instrumentalities of navigation of such vessel, or to place bombs or explosives in or upon such vessel, or to do any other act to such vessel while within the jurisdiction of the United States (or if she is entitled to fly the flag of the United States while she is on the high seas), with intent to injure or endanger the safety of the vessel or of her cargo, or of persons on board, whether the injury or danger is so intended to take place within the jurisdiction of the United States or after the vessel shall have departed therefrom; or to attempt or to conspire to do any such act with such intent.

NOTE.—Indictments for crimes of this nature have been brought under the following Federal laws, but difficulties may arise in the way of proof or other-

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wise, and there should be specific statutes on the subject: Interstate Explosives Transportation Law (35 Stat. 554, c. 334, Federal Penal Code, sections 232, 234, 235); Piracy Act, Federal Penal Code, sec. 298; Conspiracy to Cast Away Act, Federal Penal Code, sec. 296.

3. (*a*) An act authorizing the detention by the President of the United States, or by any official duly empowered by him, of any vessel, American or foreign, by withholding clearance, or in the case of American vessels that do not require clearance, by a formal notice forbidding departure, in any case in which he or the official duly empowered by him has reasonable cause to believe that fuel, arms, ammunition, men, supplies, dispatches, or information are to be carried to a warship or to a tender or supply ship of a foreign belligerent nation in violation of the obligations of the United States as a neutral nation; also penalizing the departure or attempted departure of any such vessel without clearance or after receipt of the said formal notice forbidding departure.

NOTE.—The joint resolution of March 4, 1915, covers the above in part, but such joint resolution was only applicable to vessels requiring clearance papers. Vessels engaged in the domestic coasting trade and fisheries require no clearance, and yet may also be guilty of carrying supplies illegally. As to such vessels, no statutory remedy exists except the revocation of its license under Revised Statutes, section 4377. There should be a more adequate and feasible preventive remedy as well as a criminal penalty, applicable to all vessels, as provided in the suggested act.

(*b*) An act authorizing, during a war in which the United States shall be neutral, the detention by the President of the United States, or by any official duly empowered by him, of any armed vessel owned wholly or in part by American citizens, or of any vessel, American or foreign, that has not entered the ports of the United States as a public vessel, and that is manifestly built for warlike purposes or has been converted or adapted from a private vessel to one suitable for warlike use, until the owner or master, or person or persons having charge of such vessel shall furnish proof satisfactory to the President of the United States, or to the official duly empowered by him, that the vessel will not be employed by the said owners, or master, or person or persons having charge thereof, to cruise or commit hostilities upon the subjects, citizens, or property of any foreign prince or state, or of any colony, district, or people with whom the United States are at peace, and that the said vessel will not be sold or delivery to any belligerent by them or any of them within the jurisdiction of the United States or, having left that jurisdiction upon the high seas; this act also to contain provisions making violations a crime.

NOTE.—Sections 16 and 17, Penal Code, are inadequate in many ways. Amongst the deficiencies may be noted:

(*a*) They refer only to "armed vessels" and "vessels manifestly built for warlike purposes." This is clearly not sufficiently inclusive and should be ex-

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tended to vessels whether so manifestly built or whether originally built for commercial purposes and adapted later to warlike purposes;

(*b*) Section 17 provides for bonding only when it is probable that the vessel is intended to be employed by the owners for hostilities. It should cover cases where the owners do not intend themselves so to employ it, but do intend to sell and deliver the vessel to belligerents after leaving port;

(*c*) Section 17 ends the detention when the bond is given. Owners can well afford to give bond if they can only get the vessel away from the United States for its hostile purposes.

This present provision seems not fully to comply with the international obligations of the United States. A collector of customs, acting under section 16 or 17 of the Penal Code in entire good faith and belief that he had observed the terms of the law, might allow the departure of a vessel under bond, which vessel might proceed at once to the commission of acts that might render the United States liable to a foreign Government for a breach of neutrality. The bond would not absolve the United States Government in the slightest degree. Leaving aside the ethical question involved, in the narrow sense of financial liability the resulting damages might easily outweigh many times the value of the bond given.

With a view to prevent the commission of the acts for which commission the United States Government may be responsible to a foreign Government, it seems proper in neutrality statutes to provide measures of detention until innocence of wrongful intention is proved to the satisfaction of this Government.

(*c*) An act making it a crime during a war in which the United States is a neutral for any person to send or attempt or conspire to send or take part in the sending out of the jurisdiction of the United States any vessel built, armed, or equipped as a vessel of war, or converted from a private vessel into a vessel of war, with any intent or under any agreement or contract, written or oral, that such vessel shall be delivered to a belligerent nation or to an agent, officer, or citizen of such nation, or with reasonable cause to believe that the said vessel shall or will be employed in the service of any such belligerent nation after its departure from the jurisdiction of the United States.

NOTE.—The present section 11, Penal Code, only forbids the fitting out or arming. It does not include the building or dispatching. It also only makes criminal the fitting out or arming with intent that the vessel shall commit hostilities. Intent or knowledge is almost impossible of proof in such cases. The first rule of the treaty of Washington requires a neutral country to "use due diligence to prevent the fitting out, arming, or equipping * * * of any vessel which it has reasonable ground to believe is intended to cruise." (See also Hague convention of 1907, No. XIII, art. 8.)

4. (*a*) An act authorizing the collectors of customs, or other officers duly empowered by the President, at any time during a war between foreign nations or between factions within a foreign country, to inspect any foreign private vessels within the jurisdiction of the United States for the purpose of investigating and detecting any use or attempted use of such vessel in violation of the statutes or treaties of the United States or of its obligations as a neutral nation; also

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making it a crime to prevent or obstruct such inspection by the collector or by such other officer, or to deceive or attempt to deceive such other officer.

(*b*) An act making it a crime to allow vessels in our ports to be used as a place of resort for persons conspiring or preparing the means to commit any violations of the laws of the United States.

(*c*) An act providing that during a war in which the United States is a neutral, the master's manifests and the shipper's manifests shall contain statements, in addition to those now required by law, to the following effect: That the cargo or any part of the cargo is or is not to be delivered to other vessels in port or transshipped on the high seas, and if it is to be so delivered or transshipped stating under oath the kind and quantities and the value of the total quantity of each kind of article so to be delivered or transshipped and the name of the person, corporation, or vessel, or government, to whom the delivery or transshipment is to be made; also making similar provisions apply to American vessels which do not require a clearance leaving the ports of the United States; also providing that the collector of customs shall have authority to withhold clearance, or in the case of American vessels not requiring a clearance to forbid them departure by a formal notice if, in his opinion, there is reasonable cause to believe that the master's or shipper's manifest is false; also providing that the provisions of Revised Statute 4200 as to requirement of an oath to manifests be still in force; also making it a crime for any such vessel to depart without clearance or after such formal notice.

NOTE.—The necessity of legislation suggested in (*a*) and (*b*) is clear. As to (*c*), the present law, Revised Statutes, sections 4197, 4198, 4200, should clearly be made more rigid, specific, and inclusive, so as to cover cases of intended transshipment of cargo at sea.

5. (*a*) An act requiring applications for passports to be under oath and authorizing the Secretary of State, by regulation, to require proof by affidavit of such facts as he may deem desirable and making false statements in any such application or affidavit perjury.

(*b*) An act making criminal the fraudulent obtaining, transfer, or use of passports and the alteration or forgery of passports issued.

NOTE.—(*a*) It is desirable that there should be further specific legislation relative to oaths and perjury in passport applications. Heretofore, oaths have been required under the general authority of the President to prescribe rules given in the act of June 14, 1902, and under the recognition of the possibility of such oaths in Revised Statutes, section 212. See also Revised Statutes, section 4075.

A question has been raised whether a false statement in oaths so required constitutes perjury within the purview of Penal Code, section 125.

(*b*) There should be punishment for the person who fraudulently obtains or fraudulently uses a passport.

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6. An act making criminal the fraudulent use, or application, or counterfeiting of the seal of any executive department or Government commission.

NOTE.—The seal of the State Department has been misused in connection with passport frauds.

7. An act amplifying the rather restricted provisions of the radio act with reference to the powers of the President to censor or prescribe the manner in which wireless messages, and also cablegrams, shall be transmitted to belligerent countries or ships upon the high seas, or otherwise.

NOTE.—While the President undoubtedly possesses implied power under the Constitution to take action in compliance with obligations of the United States as a neutral Nation, in the absence of legislation by Congress, to protect the sovereignty and peace of the United States, it is advisable that detailed statutory provision should be made. This subject, however, is now under consideration by an interdepartmental board, on which one of the Assistant Attorneys General has been serving, which is preparing a draft of a new radio act. I make no recommendation, therefore, for any specific legislation and submit no bill in this connection.

8. An act amending section 13, Federal Penal Code, so as to read as follows:

Whoever within the territory or jurisdiction of the United States begins, or sets on foot, or furnishes money, or provides or prepares the means for, or who takes part in or attempts to take part in, any military or naval expedition or enterprise to be carried on from thence against the territory or dominions of any foreign prince or State, or of any colony, district, or people with whom the United States are at peace, shall be fined, etc.

NOTE.—The present statute is deficient, as follows:

(*a*) It does not specifically include "naval" as well as "military" expeditions.

(*b*) Participation in such military expedition should be prevented and punished, as well as setting on foot, leadership in, or initiation of such expedition.

(*c*) It is desirable that contribution of money for such unlawful expeditions or enterprises should be made illegal in express terms, although it is probably included within the meaning of "provides or prepares the means for" in the present statute.

9. An act authorizing the seizure and detention or retention of arms and munitions of war which are being exported, or which the Government has reason to believe are about to be exported, in violation of any embargo on export of arms and munitions of war, in pursuance of the joint resolution of March 14, 1912, or of any similar future legislation, or in connection with violations of the law as to military expedition under Penal Code, section 13:

NOTE.—There is no specific provision in the joint resolution of 1912 authorizing seizure of the munitions of war.

With respect to military expeditions, the power of the President under Penal Code, section 14, to use the land or naval forces of the United States to prevent

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the expedition may necessarily include a power to seize the arms used in connection with such military expedition. There ought, however, to be specific legislative authority such as was contained in the act of March 13, 1838, chapter 31 (5 Stat. 212). This statute was passed at the time of insurrectionary troubles in Canada, and was very complete in its provisions. It was, however, by its own terms limited to continue in force only for a period of two years from date of passage. Its provisions were substantially as follows:

By section 1, Federal collectors, marshals, etc., were authorized to seize and detain any vessel or arms or munitions of war provided or prepared for any military expedition or enterprise.

By section 2, seizure might be made whenever the character of the vessel or vehicle and the quantity of arms and munitions or other circumstances shall furnish probable cause to believe "that they were intended to be used for such expedition." Detention was authorized until the President decided on restoration or a court discharged the property.

By section 3, officers after seizure must apply to court for a warrant to justify further detention.

By section 4, the owner or claimant of property seized could file a petition in court for decision as to whether the seizure was authorized.

By section 5, after pendency for three months of a seizure, owner by filing bond could obtain possession of his property.

By section 8, the President was authorized to employ the land or naval forces of the United States to prevent the violation or enforce the execution of the statute.

10. An act making it a crime for any person belonging to the armed land or naval forces of a belligerent nation, who is or shall be interned within the jurisdiction of the United States, to leave or attempt to leave said jurisdiction or to leave or attempt to leave the limits within which freedom of movement is allowed, unless authority therefor has been granted by the proper official of the United States Government, or to overstay leave of absence granted, under penalty of arrest and return to the place of internment and close confinement for a period of time within the discretion of the Government of the United States; and also making it a crime for any person within the jurisdiction of the United States and subject thereto to aid or entice any interned person so to escape or attempt to escape.

NOTE.—Under the rules of international law, a belligerent warship and its crew is required to intern in the port of a neutral nation under certain circumstances. There is no present statute which prevents a breach of the internment or escape of the crew.

11. An act making it a crime to swear falsely in any affidavit which the affiant has knowledge or reason to believe will or may be used to influence the measures or conduct of any foreign government or of any officer or agent thereof in relation to any dispute or controversy with the United States or to defeat any measure of the Government of the United States in relation to such dispute or controversy.

NOTE.—At present, no law exists under which false swearing intended to influence the Government in controversies with a foreign nation can be prosecuted. Unless the false swearer shall repeat his false statement in some grand jury

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or other judicial proceeding, so that he may be indicted for perjury, he may at present entirely escape punishment.

The phraseology used in the bill submitted herewith is substantially copied from that used in section 5 of the Federal Penal Code, which was originally known as the Logan Act.

12. An act making it a crime to obtain, without lawful authority, or to communicate to a foreign Government or any officer or agent thereof, or to any other person, any facts or information relative to the national defense obtained by virtue of employment in the service of the United States, or obtained from unlawful access to Government papers or other property, or by fraud upon or connivance with a Government official or employee, or otherwise unlawfully obtained or retained.

NOTE.—The necessity of legislation of this nature against spies is obvious. The present statute (act of Mar. 3, 1911, 36 Stat., 1084) is incomplete and defective.

This subject is covered by a draft of bill which has been already submitted to Congress by the Attorney General, printed as S. 5258, Sixty-fourth Congress, first session, and referred to the Senate Committee on Judiciary. This draft, with certain amendments to be hereafter submitted, has been approved by the War Department and the Navy Department.

13. An act making it a crime to mint or print or otherwise manufacture in the United States for any faction or body of insurgents within a country with which the United States is at peace, such faction or body of insurgents not being recognized by the United States as a government, any gold or silver or other coins or paper money intended to be issued and used as currency or any securities to be issued by such faction or body of insurgents in such other country; and further making it a crime to counterfeit within the United States any gold or silver or other coins or paper money intended to be used as currency or securities issued for or by such faction or body of insurgents.

NOTE.—At present, sections 156, 157, 158, 159, 160, 161, 162, Penal Code, forbid the counterfeiting of securities, etc., of "any foreign Government." This phrase apparently means a foreign Government recognized by the United States.

See United States *v.* Arjona, 120 U. S., p. 484: "The law of nations requires every National Government to use 'due diligence' to prevent a wrong being done within its own dominion to another nation with which it is at peace, or to the people thereof."

14. An act making it a crime for two or more persons to conspire in the United States to injure or destroy within any foreign country the property of a foreign country with which the United States is at peace, or of any subdivision or municipality thereof, when such injury or destruction is an offense under the laws of such foreign country of the grade of felony or infamous crime, and when one or more of such parties to such conspiracy do in the United States any act to effect the object of the conspiracy.

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15. An act making it a crime within the jurisdiction of the United States falsely to assume or pretend to be a diplomatic or consular or other official of a foreign Government duly accredited to the Government of the United States, with intent to defraud such foreign Government or any person, and to take upon himself to act as such, or in such pretended character to demand or obtain from any person or from such foreign government or any officer thereof any money, paper, document, or other valuable thing.

NOTE.—Cases have been transmitted to the Department of Justice from the State Department of persons falsely holding themselves out to be consuls and other officials of a foreign Government. A due regard for the right of foreign Governments would impel this country to punish such acts injurious to such foreign Government. No law at present exists.

The act suggested follows the lines of the present law punishing impersonation of United States officials. See Federal Penal Cole, section 32.

16. An act to prevent aliens other than diplomatic or consular officers or attachés from acting in the United States as the agent of a foreign Government without prior notification to and consent of the Government of the United States.

17. An act providing that it shall be lawful for the President of the United States to employ the land and naval forces thereof to detain any vessel, public or private, foreign or domestic, in compliance with, or in order to prevent the violation of, the international obligations of the United States relating to neutrality, or to enforce any or all other obligations imposed upon the United States by the law of nations, by treaties or conventions to which the United States is a party, or by the statutes of the United States.

NOTE.—Sections 14 and 15, Penal Code, authorizing the President to use the Army and Navy, restrict his use to the enforcement of only a few of the obligations imposed upon the United States as a neutral Nation, viz, breaches of the law under sections 10, 11, 12, 13, and compulsion of foreign vessels to depart in accordance with international law or treaties. While the implied power of the President under his constitutional functions would authorize his use of the Army and Navy in other cases, it seems wise to grant statutory authority. If a general law shall be passed, such as is herewith submitted, it will be unnecessary to give specific authority to the President as provided in some of the other bills submitted herewith.

2. EXTENSION OF AUTHORITY FOR SEARCH WARRANTS.

There is urgent necessity for the extension of authority to issue search warrants, not only in the enforcement of our criminal laws relating to foreign relations and the observance of neutral obligations, but also in the enforcement of other important criminal laws. I recommend the enactment of such a statute authorizing the issue of search warrants. At present search warrants are authorized only in statutes relative to customs and internal revenue, and in a few statutes authorizing searches in certain cases, such as introduction

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of liquor into Indian country, presence of unmailable matter, and vessels violating the Alaska fisheries law. There is no general provision for the issuance of a search warrant in the enforcement of the Federal criminal laws, either to recover stolen Government property or to seize property produced by, or used for or devoted to, a criminal use. It is a legitimate function of a search warrant to gain possession of such property, and legislative power to authorize search warrants in such cases is undoubted. (State *v.* McNulty, 73 N. W. 87; Commonwealth *v.* Dana, 2 Metc. 329; Collin *v.* Lean, 9 Pac. 173; In re Jackson, 96 U. S. 727. See also 11 Atl. 767; Adams *v.* United States, 192 U. S. 598; 25 Am. & Eng. Encyl. Law, 2d Ed., 146, 147.) The court in the Adams case said:

> The right to issue a search warrant to discover stolen property or the means of committing crime is too long established to require discussion.

Swindling advertising frauds, working great hardships upon the credulous poor, depend almost entirely on the use of the mails for their successful accomplishment. Documentary evidence, only procurable by search, is almost indispensable to convict these swindlers and protect their victims.

A recent decision of the Supreme Court, known as the Fremont Weeks case (233 U. S. 383), illustrates the difficulties encountered by the Government in investigating and punishing this character of crime. The court itself suggested a remedy in the following language:

> The United States marshal could only have invaded the house * * * when armed with a warrant issued as required by the Constitution.

The legislation recommended by me seems urgently necessary for the detection and efficient punishment of Federal crimes. It is highly illogical that State officials have power to enforce the criminal laws of the States by the issue of search warrants, while United States officials have no power to enforce the Federal criminal laws in such manner. Effective means of discovering the commission of crime are a protection to the citizens of the United States from crime. Properly safeguarded, there is no danger in search warrants. Draft of a bill which I have submitted to Congress contains careful restrictions on an abuse of the power. See S. 6819, H. R. 17376, Sixty-fourth Congress, first session.

3. Labeling Interstate Shipments.

In the enforcement of the embargo on the shipment of arms and ammunition into Mexico under the joint resolution of 1912 and presidential proclamations, it has been found that the embargo has been evaded, through the concealed shipment of arms in packages, boxes, etc., ostensibly containing other articles and falsely labeled.

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This could be largely prevented by amending section 235 of the Criminal Code so as to read as follows, the new matter being in italics:

Every package containing explosives or other dangerous articles, *or arms or munitions of war*, when presented to a common carrier for shipment shall have plainly marked on the outside thereof the contents thereof; and it shall be unlawful for any person to deliver, or cause to be delivered, to any common carrier engaged in interstate or foreign commerce by land or water, for interstate or foreign transportation, or to carry upon any vessel or vehicle engaged in interstate or foreign transportation, any explosive, or other dangerous article, *or arms or munitions of war*, under any false or deceptive marking, description, invoice, shipping order, or other declaration, or without informing the agent of such carrier of the true character thereof, at or before the time such delivery or carriage is made Whoever shall knowingly violate, or cause to be violated, any provision of this section, or of the three sections last preceding, or any regulation made by the Interstate Commerce Commission in pursuance thereof, shall be fined not more than $2,000, or imprisoned not more than eighteen months, or both.

I recommend such an amendment.

4. Employment for Federal Prisoners.

For more than 16 years the prisoners at the Atlanta and Leavenworth Penitentiaries have been mainly employed in constructing additional buildings and making enlargements, so that accommodations might be afforded for Federal convicts who, for lack of room, were confined in State institutions. This work of construction is now substantially completed, and, speaking broadly, the Federal penitentiaries have expanded until they are ready to accommodate the entire body of convicts. Unfortunately these convicts must be maintained in idleness to their own hurt and the Government's loss, unless provision to meet the emergency is speedily made.

At this writing, just after the summer recesses of the courts, there are about 1,200 prisoners at Atlanta and about 1,800 at Leavenworth. Normally there are more. So that the aggregate for both can be treated as holding close to 3,500. Of these there are now or shortly will be available for industrial pursuits about 700 at Atlanta and about 1,000 at Leavenworth. It is essential that this labor be promptly and intelligently utilized, in order to make the penitentiaries approach a self-sustaining basis and to safeguard the welfare of the prisoners and the discipline of the institutions.

While the Attorney General is charged with the duty of administering these institutions, he is powerless to provide for the crisis now at hand. Congress alone can determine the kind of employment desired and make provision for its inauguration, and such action is imperatively demanded.

The study of the subject of prisons and prison reform seems by common consent to lead to the conviction that industrial labor for

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those confined within the walls, and agricultural pursuits for those not so confined, is the sensible solution of the problem.

Acting along these lines, my last report suggested the establishment of two factories, one at Atlanta and the other at Leavenworth, coupled with a recommendation in favor of the acquisition of additional agricultural land at each place.

The small progress made in the directions indicated, the desire to have that progress availed of and vigorously followed up now, together with a full discussion of the kind of industries thought to be expedient, etc., will be found further along in this report, at page 69, under the heading "Employment of prisoners." Careful consideration of the situation there described is invited as existing conditions demand the immediate attention of Congress.

5. Authority to Sue a Corporation in any District in Which it Transacts Business.

Under existing law the United States can not maintain, against objection, a transitory action against a corporation in any district other than that in which is located its principal place of business within the State of its creation. This rule often operates to the disadvantage of the public. For instance, a New Jersey corporation may do its main business in a far-off State and there commit some trespass or conversion of public timber. The place of the trespass would naturally be the place also where the witnesses would reside. Nevertheless, the corporation can not be sued without its consent in that district.

I repeat the recommendation contained in the Annual Report of the Attorney General for 1910 that the law be amended so as to allow the Government to sue any corporation in any district in which it actually transacts business. A bill to this effect was introduced in the Sixty-fourth Congress, first session. (H. R. 6808.)

ENFORCEMENT OF THE ANTITRUST LAWS.

The enforcement of the antitrust laws during the past year has proceeded along the lines heretofore laid down.

The present administration has endeavored to correct the fundamental error which characterized the enforcement of the law in the past by insisting upon more effective dissolutions of monopolies and combinations in restraint of trade. At the same time it has been solicitous to avoid prosecutions for which there is no adequate ground. The Attorney General recently stated the policy of the department in this regard, as follows:

> The Sherman Act is enforced by the Department of Justice in the same manner and according to the same rules of policy as other statutes—with the same care and with neither more nor less rigor. Plain or intentional violations are proceeded against vigorously as under other statutes. When, as with all

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statutes, doubtful cases arise in which there was no intent to violate the law, they are dealt with just as similar cases under other statutes are dealt with; that is, with a view to enforcing strict compliance with the law, but without unnecessarily stigmatizing or unnecessarily burdening with litigation persons who have been honestly mistaken as to the law and who stand ready to rectify their mistake.

During the past year 10 cases have been finally determined, 4 civil and 6 criminal. There are pending at this time 36 cases, 23 civil and 13 criminal.

Of the 36 cases now pending 15 have reached the Supreme Court. Among the more important are the Reading case and the Lehigh Valley case, which have been argued and are awaiting decision; the Harvester case; the Steel case; the Kodak case; the Motion-Picture case; the American Can case; the Shoe-Machinery case; the Quaker Oats case.

1. Cases Finally Determined.

CASH-REGISTER CASES.

In the civil case against the National Cash Register Co. a decree was entered on February 1, 1916, finding that the defendants violated the Federal antitrust act by combining to restrain and attempting to monopolize interstate trade and commerce in cash registers. The decree then sets out, one by one, the means employed by the defendants to accomplish their object, and specifically forbids the use of any of those means in the future. The defendants consented to the entry of this decree.

The defendants had also been indicted and convicted under the criminal provisions of the act. The conviction was set aside, however, by the Court of Appeals, which annulled two of the three counts of the indictment and construed the third so narrowly that a successful retrial would be practically impossible in the opinion of the district attorney and the department. The criminal proceedings, therefore, will not be further prosecuted.

IOWA PLUMBERS' CASE.

Thirty-six members of the National Association of Master Plumbers, most of whom are master plumbers and retail dealers in plumbing supplies, were indicted in the southern district of Iowa for combining and conspiring to restrain trade in plumbing supplies. Among other means to that end, the defendants sought to compel manufacturers and wholesale dealers to make sales of plumbing supplies only to members of the association by concertedly refusing to deal with any manufacturer or dealer who sold to others.

A verdict of guilty was returned in February, 1915, whereupon the defendants took an appeal. The conviction was sustained by the Circuit Court of Appeals for the Eighth Circuit in an opinion filed September 16, 1916.

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UTAH PLUMBERS' CASE.

The case against a similar combination of master plumbers and retail dealers in plumbing supplies under indictment in the district of Utah came to trial in September last. The jury returned a verdict of guilty against 12 of the defendants and the court imposed fines aggregating $7,250, which were paid.

CLEVELAND STONE CASE.

The case against the Cleveland Stone Co. and its affiliated corporations was disposed of without contest by the entry on February 11, 1916, of a decree granting the relief which the Government deemed necessary to remove certain restraints imposed by the defendants upon trade and commerce in stone (building, paving, curbing, and grind stone).

MASTER HORSESHOERS' CASE.

The Master Horseshoers' National Protective Association of America and others were charged with combining and conspiring to restrain trade and commerce in drilled horseshoes, adjustable calks, and rubber hoof pads. The case was not contested, and decrees were entered in January, 1916, ordering the dissolution of the combination and granting as to the several defendants the specific relief sought in the Government's petition.

COUNTRY PRODUCE CASE.

In September, 1914, a number of commission merchants were indicted for combining to fix arbitrarily and without competition the prices at which country produce should be bought and sold in the District of Columbia. After demurrers had been overruled the defendants entered pleas of *nolo contendere* in December, 1915, and were fined by the court.

STEAMSHIP POOL CASE.

The appeal from the adverse decision of the District Court for the Southern District of New York in the case against the Hamburg-American Line and others charged with entering into a combination and agreement to pool and divide the trans-Atlantic steerage-passenger business was argued in the Supreme Court in November, 1915. In an opinion handed down on January 10, 1916, the Supreme Court reversed the decree below, which was against the Government, but refused to decide the questions in issue on the ground that the European war had rendered them moot.

MINE WORKERS' CASES.

The indictments against White and Hayes and other officers and members of the United Mine Workers, charging a combination and

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conspiracy to interfere with the mining of coal in Colorado and its transportation to and sale in other States, were nolle prossed on January 8, 1916. These indictments were returned by the grand jury on its own initiative, and upon examination of the evidence the United States attorney reached the conclusion, in which the department concurred, that the indictments could not be sustained if tried.

2. PENDING CASES INSTITUTED PRIOR TO JULY 1, 1915.

United States v. *Reading Co. et al.* (Anthracite Coal Combination).—The decision of the district court in this case was favorable to the Government in substantial part, i. e., it was held that the union through a holding company of the Philadelphia & Reading Coal & Iron Co. and the Lehigh & Wilkes-Barre Coal Co.—two of the great anthracite coal-producing companies—is a combination in restraint of trade. In some important respects, however, the decision was adverse to the Government. Both the Government and the defendants appealed to the Supreme Court. The case was argued at the beginning of the present term and a decision is awaited.

United States v. *Lehigh Valley Railroad Co. et al.*—The petition in this case charged that the Lehigh Valley Railroad, in combination with affiliated corporations, has monopolized trade and commerce in anthracite coal produced along and transported over its lines, in violation of the antitrust act; and that the same railroad is transporting in interstate commerce anthracite coal in which it has an interest, in violation of the commodity clause of the act to regulate commerce. The district court dismissed the petition, whereupon the Government appealed to the Supreme Court. The case was recently argued and a decision is awaited.

United States v. *International Harvester Co. et al.*—This case is pending in the Supreme Court awaiting reargument on the appeal by the defendants from the decision of the district court sustaining the contentions of the Government and ordering the combination dissolved. It will be reached for argument at an early date.

United States v. *United States Steel Corporation et al.*—In conformity with the adverse decision of the district court, a decree dismissing the Government's petition in this case was entered in September, 1915. The Government appealed to the Supreme Court and the case has been advanced for hearing on February 26, 1917.

United States v. *Eastman Kodak Co. et al.*—A decision favorable to the Government was handed down in August, 1915, and a decree granting the relief sought was entered in January, 1916. The defendants appealed to the Supreme Court and the case is being prepared for argument during the present term.

United States v. *United Shoe Machinery Co. et al.*—The district court for the district of Massachusetts decided this case adversely to the Government and entered a decree dismissing the petition.

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The Government appealed to the Supreme Court, where the case is now pending.

There is also pending in the district of New Jersey an ancillary proceeding against the United Shoe Machinery Co. of New Jersey et al., the disposition of which will await the outcome of the main case.

United States v. *Motion Picture Patents Co. et al.*—The Government prevailed in the district court, and a decree granting the relief prayed for in its petition was entered in January, 1916. The defendants appealed to the Supreme Court, where the case is now pending.

United States v. *American Can Co. et al.*—The district court handed down an opinion in this case on February 23, 1916, and on July 7, 1916, a decree was entered adjudging that the American Can Co. was organized as a combination in restraint of trade. However, the only relief granted was the retention of the bill, i. e., the keeping of the combination under the supervision of the court. Considering that to be inadequate the Government has appealed to the Supreme Court.

United States v. *Quaker Oats Co. et al.*—This case was heard by three circuit judges under the expediting act. The decision of the majority was against the Government, one judge dissenting. The Government has appealed to the Supreme Court.

United States v. *Keystone Watch Case Co. et al.*—The cross appeals from the decision of the lower court in this case, which was in part favorable and in part adverse to the contentions of the Government, are awaiting hearing in the Supreme Court.

United States v. *Great Lakes Towing Co. et al.*—The district court decided that the Great Lakes Towing Co. having monopolized towing facilities at most of the important lake ports was a combination in restraint of trade, but did not order its dissolution. The case is now pending on appeal in the Supreme Court.

United States v. *Associated Billposters et al.*—The defendants were charged with entering into a combination and conspiracy in restraint of trade and commerce in posters. A decision favorable to the Government was handed down in the district court in March, 1916, and a decree granting the relief sought was entered in July, 1916. The defendants have appealed to the Supreme Court.

United States v. *Board of Trade of the City of Chicago.*—This case involves a rule of the board of trade under which the price of grain arriving in Chicago when the board is not in session is arbitrarily determined. The court announced its decision in favor of the Government and ordered the preparation of an appropriate decree, which was entered in December, 1915. The defendants have appealed to the Supreme Court.

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United States v. *Prince Line (Ltd.) et al.; United States* v. *American-Asiatic Steamship Co. et al.*—In the Prince Line case the defendants are charged with combining to restrain and monopolize ocean transportation between ports of the United States and ports of Brazil by means of pooling agreements, rebates, etc.; and in the American-Asiatic case there is a similar charge with respect to ocean transportation between ports in the Philippine Islands, Japan, China, and the Far East. Both cases were decided adversely to the Government by the district court and are now pending on appeal in the Supreme Court.

United States v. *Corn Products Refining Co. et al.*—The petition in this case charged the defendants with monopolizing interstate trade and commerce in corn products, sirup, glucose, etc. A decision favorable to the Government was handed down in the district court for the southern district of New York on June 24, 1916, and a final decree was entered on November 13, 1916.

United States v. *Southern Pacific-Central Pacific Railway Co. et al.*—This is a proceeding to compel the Southern Pacific Railway Co. to relinquish its control of the Central Pacific Railway Co. The case was argued in December, 1915, before the circuit judges of the eighth circuit sitting as a district court, and a decision is awaited.

United States v. *American Sugar Refining Co. et al.*—This is a proceeding against an alleged combination in restraint of trade in the manufacture and sale of sugar. The case was ready for argument in October, 1915, when the court ordered that the hearing be postponed, awaiting the decisions of the Supreme Court in the Harvester and Steel cases.

United States v. *McCoach et al.*—This is an indictment returned in the western district of Pennsylvania against a combination of master plumbers and retail dealers in plumbing supplies. It is similar to the indictments prosecuted to a successful conclusion in the southern district of Iowa and the district of Utah. (See p. 25.) It is expected that this case will be brought to trial at an early date.

United States v. *King et al.*—Five officers and members of the Aroostook Potato Shippers' Association were indicted in the district of Massachusetts for combining and conspiring to restrain interstate trade in potatoes. The trial of the case resulted in a verdict of guilty against the five defendants on October 10, 1916. The court has not yet imposed sentence.

United States v. *Rockefeller et al.* (New Haven case).—The trial of 11 of the principal defendants in this case was begun in October, 1915, and on January 9, 1916, the jury acquitted 6 of the defendants and reported a disagreement as to the other 5.

United States v. *Hollis et al; United States* v. *Hartwick et al.; United States* v. *Colorado & Wyoming Lumber Dealers Association*

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et al.—These are cases against alleged combinations in restraint of trade in lumber. The Hollis case was argued in the District Court for the District of Minnesota in December, 1914, and a decision is awaited. The other two cases are at issue, but will not be tried until the Hollis case has been decided.

United States v. *Michael Artery et al.; United States* v. *Michael Boyle et al.*—These cases comprise 10 indictments, 8 of which charge certain so-called business agents of Chicago labor unions with combining and conspiring to prevent the unloading in Chicago of goods shipped from other States, and 2 of which charge a conspiracy between labor unions and certain manufacturers in Chicago to prevent the installation in Chicago of electrical appliances and lighting fixtures manufactured elsewhere. Demurrers to the 10 indictments have been overruled and the cases are being prepared for early trial.

United States v. *Charles S. Mellen et al.*—This indictment charges the defendants with conspiring to prevent the construction by or in the interest of the Grand Trunk Railway Co. of certain lines of railroad in New England, thereby forestalling threatened competition with the New Haven system.

United States v. *Isaac Whiting et al.* (2 cases).—The indictments in these cases charge the defendants with conspiring to restrain and monopolize trade in milk throughout the New England States. Some of the defendants have entered pleas of *nolo contendere*, and the case has been continued, pending disposition of the case against the remaining defendants.

United States v. *Booth Fisheries Co. et al.*—This indictment was returned in the western district of Washington and charges the defendants with maintaining a combination to fix the price of fish in certain parts of the country. Awaiting trial.

United States v. *Western Cantaloupe Exchange et al.*—The defendants were indicted in the northern district of Illinois for combining to restrain and monopolize interstate trade in cantaloupes. Awaiting trial.

3. Pending Cases Instituted Since July 1, 1915.

United States v. *United Shoe Machinery Co. et al.*, eastern district of Missouri.—Petition filed October 18, 1915, charging that the so-called tying clauses in a series of leases used by the defendants in the conduct of their business are violative of section 3 of the Clayton Act. Among other proceedings, a motion to dismiss the petition, involving largely the merits of the case, was recently overruled. The case is now at issue, and the taking of testimony is about to begin.

United States v. *Rintelen, Buchanan, et al.*, southern district of New York.—Indictment returned December 28, 1915, charging Rintelen, Buchanan, and others with conspiring to restrain, prevent, and

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hinder foreign commerce in munitions of war and in military and naval stores. Motion to quash overruled June 29, 1915. The trial of the case is awaiting the outcome of the proceedings instituted by certain of the defendants residing in the District of Columbia to resist their removal to New York.

United States v. *Franz Bopp et al.*, northern district of California.—Indictment returned February 11, 1916, charging Bopp and six others with conspiring to restrain and destroy interstate and foreign commerce of the United States in munitions of war, etc. Demurrers and motions to quash were overruled on March 30, 1916. Awaiting trial.

United States v. *Cowell et al.*, district of Oregon.—Indictment returned October 27, 1916, charging certain officers and agents of nine cement manufacturing companies with engaging in a combination to restrain and with monopolizing interstate trade and commerce in cement on the Pacific coast. Among other things the indictment alleges that the defendants apportioned territory and maintained uniform prices.

CASES UNDER THE ACT TO REGULATE COMMERCE.

1. Under the Commodity Clause.

In the cases against the Lehigh Valley Co. and the Reading Co. under the Federal antitrust law, referred to above, the defendants are also charged with transporting anthracite coal in which they have an interest in violation of the commodity clause.

The Lehigh Valley case was decided against the Government by the district court on the authority of the decision of the District Court for the Eastern District of Pennsylvania in the case of *United States* v. *Delaware, Lackawanna & Western Railroad Co. et al.* The latter case, however, has since been reversed by the Supreme Court. The Lehigh Valley case was appealed to the Supreme Court, has been argued there, and a decision is awaited.

In the Reading case the decision, in so far as it related to alleged violations of the commodity clause, was also adverse to the Government. An appeal was taken to the Supreme Court, where the case has been argued, and a decision is awaited.

The case pending in the western district of New York against the Pennsylvania Railroad Co., charged with transporting in interstate commerce anthracite coal mined by the Susquehanna Coal Co., with which it is united in ownership and management, is awaiting trial.

2. Rebates and Unlawful Discriminations.

Since the last report 51 cases have been instituted and 52 concluded under the provisions of the act to regulate commerce and the

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so-called Elkins Act prohibiting the giving or receiving of rebates and discriminations. The following is a summary of such cases:

(A) CASES INSTITUTED.

United States *v.* Abilene & Southern Railway Co., district court, northern Texas, October 9, 1916, indictment charging acceptance and receipt of concessions; 5 counts.

United States *v.* Chicago, Burlington & Quincy Railroad Co., district court, western Illinois, November 10, 1915, indictment charging failure to post tariffs at Rockford, Ill.; 1 count.

United States *v.* Chicago, Indianapolis & St. Louis Railway Co., district court, northern Illinois, July 20, 1916, petition in equity charging granting of rebates and concessions to Monon Coal Co.

United States *v.* Chicago, Milwaukee & Gary Railway Co., district court, western Illinois, November 10, 1915, indictment charging failure to post tariffs at Rockford, Ill.; 1 count.

United States *v.* Chicago, Milwaukee & St. Paul Railway Co., district court, western Illinois, November 10, 1915, indictment charging failure to post tariffs at Rockford and Freeport, Ill.; 2 counts.

United States *v.* Chicago & North Western Railway Co., district court, western Illinois, November 10, 1915, indictment charging failure to post tariffs at Rockford, Ill.; 1 count.

United States *v.* Cudahy Packing Co., John A. McNaughton, and James W. Robb, district court, northern Illinois, March 23, 1916, indictment charging presentation of false claims; 45 counts; and receiving concessions, 5 counts.

United States *v.* Cudahy Packing Co., John A. McNaughton, James W. Robb, John E. O'Brien, Frank Melbille, and Chicago & Alton Railroad Co., district court, northern Illinois, March 23, 1916, indictment charging conspiracy to violate the act to regulate commerce; 1 count.

United States *v.* R. M. Davies, district court, western Texas, May 1, 1916, indictment charging false billing; 1 count.

United States *v.* Detroit & Toledo Shore Line Railroad Co., district court, eastern Michigan, March 21, 1916, indictment charging grant of concessions on shipments of coal to the Norfolk & Chesapeake Coal Co.; 6 counts.

United States *v.* Bernard A. Eckhart, of Eckhart Milling Co., district court, northern Illinois, January 10, 1916, indictment charging soliciting, accepting and receiving rebates; 5 counts.

United States *v.* Farwell, Ozman, Kirk & Co., district court, St. Paul, Minn., December 9, 1915, indictment charging false billing; 10 counts.

United States *v.* Finch Van Slyck & McConville, district court, St. Paul, Minn., December 9, 1915, indictment charging false billing; 10 counts.

United States *v.* Hewitt-Lea-Funck Co. and Wm. G. Funck, General Manager, district court, western Washington, January 13, 1916, indictment charging false billing; 10 counts.

United States *v.* Hocking Valley Railroad Co., district court, northern Ohio, May 18, 1916, indictment charging failure strictly to observe demurrage tariffs in not giving notice of arrival; 10 counts.

United States v. Hocking Valley Railroad Co., district court, northern Ohio, May 18, 1916, indictment charging failure strictly to observe demurrage tariffs in not collecting demurrage after notice; 10 counts.

United States *v.* Hocking Valley Railroad Co., district court, northern Ohio, May 18, 1916, indictment charging grant of concessions to M. A. Hanna Coal Co.; 15 counts.

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United States *v.* Illinois Central Railroad Co., district court, northern Illinois, November 10, 1915, indictment charging failure to post tariffs at Rockford and Freeport, Ill.; 2 counts.

United States *v.* George Johnson, district court, northern Illinois, November 5, 1915, indictment charging unlawful use of interstate pass; 1 count.

United States *v.* Kelleys Creek Colliery Co., district court, northern Ohio, May 18, 1916, indictment charging receipt of concessions from the Kanawha & Michigan Railway Co.; 25 counts.

United States *v.* Kanawha & Michigan Railway Co., district court, northern Ohio, May 18, 1916, indictment charging grant of concessions to the Kelleys Creek Colliery Co.; 25 counts.

United States *v.* Charles D. Koehler, district court, eastern Pennsylvania, June 12, 1916, information lodged charging unlawful use of pass.

United States *v.* Simon Lipfitz, district court, St. Paul, Minn., December 9, 1915, indictment charging presentation of false claims; 2 counts.

United States *v.* L. B. McCargar Feed Mill Co., district court, western Missouri, April 3, 1916, indictment charging false billing; 10 counts.

United States *v.* L. B. McCargar Feed Mill Co., district court, western Missouri, September 19, 1916, indictment charging false billing; 10 counts.

United States *v.* Hal Mangum, district court, eastern Missouri, June 10, 1916, indictment charging presentation of a false claim; 1 count.

United States *v.* Memphis Furniture Co., district court, western Tennessee, May 26, 1916, indictment charging false billing; 9 counts.

United States *v.* William H. Merritt, E. L. Merritt, and W. H. Merritt Co., district court, northern Illinois, January 10, 1916, indictment charging soliciting, accepting, and receiving concessions; 5 counts.

United States *v.* H. M. Modisett, general manager, St. Louis & Hannibal Railway Co., district court, eastern Missouri, December 7, 1915, indictment charging making of false entries in the records of St. Louis & Hannibal Railway Co.; 1 count.

United States *v.* New York Central Railroad Co., district court, eastern Michigan, March 21, 1916, indictment charging grant of concessions to F. W. Stock & Son; 10 counts.

United States *v.* Norfolk & Chesapeake Coal Co., district court, eastern Michigan, March 21, 1916, indictment charging receipt of concessions from the Detroit & Toledo Shore Line Railroad Co.; 6 counts.

United States *v.* Levi Old, district court, eastern Missouri, June 10, 1916, indictment charging soliciting a concession from the St. Louis, Iron Mountain & Southern Railway Co.; 1 count.

United States *v.* Philadelphia & Reading Railway Co., district court, eastern Pennsylvania, June 10, 1916, indictment charging failure strictly to observe demurrage tariffs; 45 counts.

United States *v.* Philadelphia & Reading Railway Co., district court, eastern Pennsylvania, June 10, 1916, indictment charging participation in transportation by barge line without tariffs on file; 60 counts.

United States *v.* N. Rahall, district court, southern West Virginia, September 25, 1916, indictment charging presentation of a false claim; 1 count.

United States *v.* St. Louis & Hannibal Railway Co. and H. M. Modisett, general manager, district court, eastern Missouri, December 7, 1915, indictment charging receipt of concessions; 3 counts.

United States *v.* St. Louis, Iron Mountain & Southern Railway Co., district court, southern Illinois, November 5, 1915, indictment charging failure to observe routing instructions; 8 counts.

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United States *v.* St. Louis & San Francisco Railroad Co., Union Pacific Railroad Co., Western Tie & Timber Co., J. A. Middleton, F. T. M. (Frisco) and A. E. Nixon, V. P. Western Tie & Timber Co., district court, western Missouri, November 24, 1915, indictment charging conspiracy to violate the Elkins Act; 1 count.

United States *v.* Perry Small, traffic manager, Welsbank & Co., district court, northern California, November 29, 1915, indictment charging presentation of false claims; 3 counts.

United States *v.* G. Sommers & Co., district court, St. Paul, Minn., December 9, 1915, indictment charging false billing; 10 counts.

United States *v.* W. T. Spurgin, district court, southern Ohio, December 11, 1915, indictment charging false billing; 15 counts.

United States *v.* F. W. Stock & Son, district court, eastern Michigan, March 21, 1916, indictment charging receipt of concessions from the New York Central Railroad Co.; 10 counts.

United States *v.* F. W. Stock & Son, district court, eastern Michigan, March 21, 1916, indictment charging false billing; 10 counts.

United States *v.* Stolte Dangel & Foss Co., district court, western Wisconsin, November 16, 1915, indictment charging false billing; 7 counts.

United States *v.* Toledo & Ohio Central Railroad Co., district court, northern Ohio, May 18, 1916, indictment charging failure strictly to observe demurrage tariffs in not giving notice of arrival; 10 counts.

United States *v.* Toledo & Ohio Central Railroad Co., district court, northern Ohio, May 18, 1916, indictment charging failure strictly to observe demurrage tariffs in not collecting demurrage after notice; 10 counts.

United States *v.* Union Pacific Railroad Co. and St. Louis & San Francisco Railroad Co., district court, western Missouri, November 24, 1915, indictment charging grant of concessions to the Western Tie & Timber Co.; 1 count.

United States *v.* United Brokerage Co. and R. L. Phillipi, president, district court, northern California, November 29, 1915, indictment charging presentation of false claims; 2 counts.

United States *v.* Welsbank & Co., district court, northern California, November 29, 1915, indictment charging presentation of false claims; 5 counts.

United States *v.* Alexander Weinreich, district court, eastern Pennsylvania, June 12, 1916, information lodged charging unlawful use of pass.

United States *v.* Western Tie & Timber Co., district court, western Missouri, November 24, 1915, indictment charging receipt of concessions from the Union Pacific Railroad Co. and St. Louis & San Francisco Railroad Co.; 1 count.

(B) CASES CONCLUDED.

United States *v.* Abilene & Southern Railway Co., district court, northern Texas, indictment charging acceptance and receipt of concessions. October 9, 1915, plea of guilty entered and fine of $5,000 imposed.

United States *v.* Orton C. Collins, agent, Wisconsin Auto Sales Co., district court, eastern Wisconsin, indictment charging presentation of false claims. November 12, 1915, verdict of guilty and fine of $200 imposed.

United States *v.* Connor Lumber & Land Co., district court, eastern Wisconsin, indictment charging receipt of concessions from the Laona & Northern Railroad Co. February 11, 1916, plea of nolo contendere entered and fine of $3,000 imposed.

United States *v.* Connor Lumber & Land Co., district court, eastern Wisconsin, indictment charging false billing, February 11, 1916, nolle prosequi entered.

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United States *v.* Delaware, Lackawanna & Western Railroad Co., district court, New York, indictment charging grant of concessions to the Delaware, Lackawanna & Western Coal Co. December 24, 1915, verdict of not guilty.

United States *v.* Delaware, Lackawanna & Western Coal Co., district court, New York, indictment charging receipt of concessions from the Delaware, Lackawanna & Western Railroad Co. December 24, 1915, verdict of not guilty.

United States *v.* Detroit & Toledo Shore Line Railroad Co., district court, eastern Michigan, indictment charging grant of concessions on shipments of coal to the Norfolk & Chesapeake Coal Co. May 27, 1916, plea of guilty entered and fine of $3,000 imposed.

United States *v.* Bernard E. Eckhart of Eckhart Milling Co., district court, northern Illinois, indictment charging soliciting, accepting, and receiving rebates. June 21, 1916, verdict of not guilty.

United States *v.* Elgin, Joliet & Eastern Railroad Co., district court, northern Illinois, indictment charging knowingly accepting and transporting shipments at less than legal rates. Demurrer filed and overruled. May 15, 1916, verdict of guilty. Fine not yet imposed.

United States *v.* Erie Railroad Co. and Delaware & Hudson Co., district court, northern Ohio, indictment charging receipt of compensation for transportation at less than the published rates. November 15, 1915, plea of guilty entered and fines of $2,500 against Erie Railroad Co. and $1,000 against Delaware & Hudson Co. were imposed.

United States *v.* Finch Van Slyck & McConville, district court, St. Paul, Minn., indictment charging false billing. June 16, 1916, verdict of not guilty.

United States *v.* Gerlach Live Stock Co. and W. H. Lyon, secretary, district court, northern California, indictment charging false billing. June 30, 1916, plea of guilty entered as to the corporation and fine of $1,000 imposed. Nolle prosequi entered as to W. H. Lyon.

United States *v.* Hewitt-Lea Funck Co. and Wm. G. Funck, general manager, district court, western Washington, indictment charging false billing. June 5, 1916, plea of guilty entered and fines of $6,000 against corporation and $500 against Wm. G. Funck were imposed.

United States *v.* Hecht & Campe, Inc., district court, southern Georgia, indictment charging false billing, and receipt of concessions. October 9, 1916, plea of nolo contendere entered and fine of $100 imposed.

United States *v.* Illinois Central Railroad Co., district court, eastern Louisiana, indictment charging grant of switching service at New Orleans on import shipments of bananas without tariff authority. February 5, 1916, verdict of guilty and fine of $1,000 imposed.

United States *v.* George Johnson, district court, northern Illinois, indictment charging unlawful use of interstate pass. December 21, 1915, plea of guilty entered and defendant sentenced to 13 months in penitentiary.

United States *v.* Kellum Coffee & Manufacturing Co., district court, western Missouri, indictment charging false billing. Demurrer overruled. April 10, 1916, plea of guilty entered and fine of $250 imposed.

United States *v.* Charles D. Koehler, district court, eastern Pennsylvania, information lodged charging unlawful use of pass. June 12, 1916, plea of guilty entered and fine of $100 imposed.

United States *v.* Laona & Northern Railway Co., district court, eastern Wisconsin, indictment charging grant of concessions to Connor Lumber & Land Co. February 11, 1916, plea of nolo contendere entered and fine of $3,000 imposed.

United States *v.* Laser Grain Co., district court, western Missouri, indictment charging presentation of false claims. Demurrer overruled. February 11, 1916, verdict of guilty and fine of $1,000 imposed.

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United States *v.* Lehigh Coal & Navigation Co., district court, New Jersey, indictment charging receipt of concessions from the Central Railroad Co. of New Jersey. March 16, 1916, verdict of guilty and fine of $100,000 imposed.

United States *v.* Simon Lipfitz, district court, St. Paul, Minn., indictment charging presentation of false claims. June 16, 1916, verdict of not guilty.

United States *v.* H. M. Modisett, general manager, St. Louis & Hannibal Railway Co., district court, eastern Missouri, indictment charging the making of false entries in the records of St. Louis & Hannibal Railway Co. May 22, 1916, nolle prosequi entered.

United States *v.* New Orleans & Northeastern Railway Co., district court, eastern Louisiana, indictment charging failure to observe switching tariffs at New Orleans. February 5, 1916, verdict of guilty and fine of $750 imposed.

United States *v.* New York Central Railroad Co., district court, eastern Michigan, indictment charging grant of concessions to F. W. Stock & Son. July 10, 1916, plea of guilty entered and fine of $2,500 imposed.

United States *v.* Norfolk & Chesapeake Coal Co., district court, eastern Michigan, indictment charging receipt of concessions from the Detroit & Toledo Shore Line Railroad Co. May 27, 1916, plea of guilty entered and fine of $3,000 imposed.

United States *v.* Northern Central Railway Co., district court, western New York, indictment charging grant of concessions to the Mineral Railroad & Mining Co., by failure to collect royalties on coal mined. December 18, 1915, verdict of guilty and fine of $20,000 imposed.

United States *v.* Pennsylvania Co., district court, northern Illinois, indictment charging grant of rebates to the W. H. Merritt Co. December 7, 1915, verdict of guilty. Fine not yet imposed.

United States *v.* Irving Pitt Manufacturing Co., district court, western Missouri, indictment charging false billing. December 21, 1915, demurrer sustained.

United States *v.* Pittsburgh, Cincinnati, Chicago & St. Louis Railway Co., district court, northern Illinois, indictment charging grant of rebates to W. H. Merritt & Co. December 7, 1915, verdict of guilty. Fine not yet imposed.

United States *v.* Philadelphia & Reading Railway Co., district court, eastern Pennsylvania, indictment charging failure strictly to observe demurrage tariffs. June 1, 1916, demurrer sustained. New indictment returned.

United States *v.* Philadelphia & Reading Railway Co., district court, eastern Pennsylvania, indictment charging grant of concessions by failure to collect demurrage. June 1, 1916, demurrer sustained.

United States *v.* Philadelphia & Reading Railway Co., district court, eastern Pennsylvania, indictment charging participation in transportation without tariffs on file and grant of privileges not shown in tariffs. June 1, 1916, demurrer sustained. New indictment returned.

United States *v.* Potlatch Lumber Co. and Joseph B. Cunningham, district court, eastern Washington, indictment charging false billing. October 1, 1914, plea of guilty entered by corporation and fine of $2,000 imposed. January 21, 1916, verdict of not guilty as to Cunningham.

United States *v.* Richards & Conover Hardware Co., district court, western Missouri, indictment charging false billing. December 21, 1915, plea of guilty entered and fine of $40 imposed.

United States *v.* St. Louis, Iron Mountain & Southern Railway Co., district court, eastern Illinois, indictment charging failure to observe routing instructions. June 23, 1916, plea of guilty entered and fine of $500 imposed.

United States *v.* St. Louis & Hannibal Railway Co. and H. M. Modisett, general manager, district court, eastern Missouri, indictment charging receipt of

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concessions. May 22, 1916, plea of guilty entered by corporation and fine of $3,000 imposed. Nolle prosequi entered as to indictment against H. M. Modisett.

United States *v.* W. T. Spurgin, district court, southern Ohio, indictment charging false billing. January 10, 1916, plea of guilty entered and fine of $250 imposed.

United States *v.* F. W. Stock & Son, district court, eastern Michigan, indictment charging receipt of concessions from the New York Central Railroad Co. July 6, 1916, plea of guilty entered and fine of $1,500 imposed.

United States *v.* F. W. Stock & Son, district court, eastern Michigan, indictment charging false billing. July 6, 1916, plea of guilty entered and fine of $1,500 imposed.

United States *v.* Stock Yards Cotton & Linseed Oil Co. and H. G. Cherry, manager, district court, Kansas, indictment charging soliciting information from carriers' agents concerning shipments of competitors. April 22, 1916, plea of guilty entered by corporation and fine of $400 imposed. Nolle prosequi entered as to indictment against H. G. Cherry.

United States *v.* Stolte Dangel & Foss Co., district court, western Wisconsin, indictment charging false billing. December 10, 1915, plea of nolo contendere entered and fine of $100 imposed.

United States *v.* Morris Stulsaft Co., Morris Stulsaft, and Jacob Stulsaft, district court, northern California, indictment charging presentation of false claims. December 8, 1915, pleas of guilty entered by corporation and Jacob L. Stulsaft and fines of $1,500 and $500, respectively, were imposed. Nolle prosequi entered as to indictment against Morris Stulsaft.

United States *v.* Swift & Co., district court, northern Illinois, indictment charging receipt of concessions from the Ann Arbor Railroad Co. and for false billing. May 3, 1916, verdict of guilty. Fine not yet imposed.

United States *v.* Frederick D. Underwood, president Erie Railroad Co., district court, northern Ohio, indictment charging transportation of passengers at less than published rates. November 15, 1915, nolle prosequi entered.

United States *v.* United Brokerage Co. and R. L. Phillipi, president, district court, northern California, indictment charging presentation of false claims. December 9, 1915, pleas of guilty entered and fines of $250 against corporation and $25 against R. L. Phillipi were imposed.

United States *v.* Fred D. Van Vechten, district court, eastern Pennsylvania, indictment charging presentation of false claims. April 14, 1916, plea of guilty entered and fine of $375 imposed.

United States *v.* Valley Fruit Produce Association and F. W. Shields, manager, district court, North Yakima, Wash., indictment charging false billing. January 15, 1916, pleas of guilty entered and fines of $150 against corporation and $500 against F. W. Shields were imposed.

United States *v.* Alexander Weinreich, district court, eastern Pennsylvania, information lodged charging unlawful use of interstate pass. June 12, 1916, plea of guilty entered and fine of $100 imposed.

United States *v.* Western Pacific Railway Co., district court, Nevada; indictment charging grant of concessions to Simmons Manufacturing Co. November 24, 1915, verdict of not guilty.

United States *v.* Walter Withers, district court, northern Alabama; indictment charging unlawful use of interstate pass. January 10, 1916, nolle prosequi entered.

United States *v.* Wisconsin Auto Sales Co., district court, eastern Wisconsin; indictment charging presentation of false claims. Demurrer overruled. November 12, 1915, verdict of guilty and fine of $500 imposed.

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3. Cases Arising Out of Orders of the Interstate Commerce Commission.

O'Keefe, Receiver of New Orleans, Texas & Mexico Railroad Co. v. *The United States*, eastern district of Louisiana, was a suit to enjoin an order fixing divisions for the tap lines in pursuance of the decision of the Supreme Court in the so-called Tap Line case. The district court dismissed the petition, which action was, on appeal of the receiver, affirmed by the Supreme Court. (240 U. S., 294.)

Louisville & Nashville Railroad Co. v. *The United States*, middle district of Tennessee, was a suit to annul an order directing the railroad companies to desist from the discriminatory practice of switching carload coal over their own terminals at Nashville for each other, and refusing, under the same circumstances and conditions, to switch carload coal over their terminals for the Tennessee Central Railroad Co. The district court entered a decree dismissing the petition, which was affirmed by the Supreme Court. (238 U. S., 1.)

Philadelphia & Reading Railway Co. v. *The United States*, eastern district of Pennsylvania, was a suit to enjoin an order directing the company to desist from a discrimination in rates on cement from Allentown, Pa., to points in New Jersey and New York, the discrimination being against Jersey City. The district court dismissed the petition and on appeal the Supreme Court reversed the judgment and annulled and enjoined the order. (240 U. S., 334.)

Merchants' & Manufacturers' Traffic Association of Sacramento v. *The United States*, northern district of California, is a suit to enjoin an order eliminating certain cities from the coast terminal group which theretofore had taken coast terminal rates. The order of the commission was entered on an application of the transcontinental carriers for relief from the provisions of section 4 of the act to regulate commerce, commonly known as "the long-and-short-haul" clause. The district court granted an injunction. The case was taken to the Supreme Court, where it has been argued and is now awaiting decision.

The Pennsylvania Railroad Co. v. *The United States*, western district of Pennsylvania, is a suit to enjoin an order directing the company to cease and desist from refusing to supply an adequate number of oil tank cars to transport the normal output of two shippers of oil upon reasonable request therefor. The district court granted an injunction. The case was taken to the Supreme Court, where it has been argued and is now awaiting decision.

Manufacturers' Railway Co. v. *The United States*, and *Manufacturers' Railway Co.* v. *The United States*, eastern district of Missouri, are two cases commenced to enjoin an order suggesting $2.50 as the

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maximum charge which the Manufacturers' Railway Co. may receive for delivering loaded cars to trunk lines at the plant of the Anheuser-Busch Brewing Association, St. Louis. The district court dismissed both bills and the petitioners appealed to the Supreme Court, where the cases are now pending.

Illinois Central Railroad Co. v. *The United States*, eastern district of Illinois, is a suit to enjoin the commission from proceeding to hear and determine the amount of reparation to which certain shippers were entitled by reason of the failure of the company to furnish an adequate supply of coal cars for their normal output of coal. The district court enjoined the commission and the case is pending in the Supreme Court on the appeal of the Government.

Nashville Grain Exchange v. *The United States*, northern district of Georgia, was a suit to enjoin an order directing that the carriers desist from a discrimination in favor of Nashville and against Atlanta and other Georgia points in the use of what is known as the rebilling privilege as applied to coarse grains. The district court dismissed the petition and no appeal was taken.

Louisville & Nashville Railroad Co. v. *The United States*, western district of Kentucky, is a suit to enjoin an order denying authority of the carriers to charge higher rates for the transportation of freight southbound to Bowling Green than they charged to Nashville, and to charge higher rates for the transportation of freight northbound to Bowling Green than they charged to Louisville. The district court dismissed the petition and the case is pending in the Supreme Court on the appeal of the company.

Lehigh Valley Railroad Co. v. *The United States*, eastern district of Pennsylvania, is a suit to enjoin an order denying the authority of the Lehigh Valley Railroad Co. to continue its ownership of the capital stock of the Lehigh Valley Transportation Co. under the Panama Canal act. The district court dismissed the petition, and the case is pending in the Supreme Court on the appeal of the company.

St. Louis Southwestern Railway Co. v. *The United States*, western district of Kentucky, is a suit to enjoin an order directing the carriers to remove a discrimination in rates on lumber from southern territory to Paducah, Ky., and Cairo, Ill. The district court dismissed the petition, and the case is pending in the Supreme Court on the appeal of the companies.

Commonwealth of Massachusetts v. *The United States*, district of Massachusetts, is a suit to enjoin an order directing the carriers to desist from the discrimination of absorbing dockage charges of the Commonwealth Pier, owned by the State of Massachusetts, and refusing to absorb dockage charges of other piers handling freight

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under similar circumstances. The case has not been brought to a hearing, and no action has been taken other than to raise the issues involved.

McLean Lumber Co. v. *The United States*, eastern district of Tennessee, is a suit to enjoin an order allowing the Alabama Great Southern Railroad to increase the rates on logs from points located along its line to Chattanooga. The case was argued and submitted on final hearing in July, 1916, and in October, 1916, the district court dismissed the petition.

Missouri, Kansas & Texas Railway Co. v. *The United States*, and three similar cases, northern district of Texas; and *Dorcheat Valley Railroad Co.* v. *United States*, western district of Louisiana, were cases filed to enjoin orders of the commission, but which have never been brought to a hearing.

Illinois Central Railroad Co. and *Morton Salt Co.* v. *The United States*, northern district of Illinois; *Central Vermont Railway Co.* v. *The United States*, district of Nebraska; and *Louisville & Nashville Railroad Co.* v. *The United States*, western district of Virginia, were suits to enjoin orders of the commission. The district courts in all cases denied the motions for interlocutory injunctions, and the cases have never been brought to final hearing.

Warren, Johnsonville & Saline River Railroad Co. v. *The United States*, eastern district of Arkansas; and *Louisville & Nashville Railroad Co.* v. *The United States*, western district of Kentucky, were voluntarily dismissed by plaintiffs.

St. Louis, Iron Mountain & Southern Railway Co. v. *The United States*, eastern district of Illinois, was a suit to enjoin an order directing certain southern lines to remove a discrimination in their rates on lumber against Metropolis and in favor of Cairo, Ill. The order was enjoined, and the Government appealed to the Supreme Court. Subsequently, with the consent of all parties, the appeal was dismissed.

CASES UNDER OTHER INTERSTATE-COMMERCE LAWS.

1. Safety-Appliance Acts.

During the year there were forwarded to the United States attorneys for prosecution charges of 703 alleged violations of these acts. Of the cases disposed of, both old and new, judgment was confessed as to 473 violations, while cases involving 55 violations were dismissed. There were decisions by the courts on 106 alleged violations, out of which number the Government was successful in 89 and unsuccessful in 17. The defendants prosecuted appeals in 49 cases. The total amount of penalties collected was $55,300. Penalties pending payment at the end of the year amounted to $30,600.

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2. Hours-of-Service Act.

There were reported to the United States attorneys for prosecution 1,129 alleged violations of the act. Of the cases disposed of, both old and new, judgment was confessed as to 628 cases, and proceedings involving 70 alleged violations were dismissed by the Government. Trials were had and decisions reached on 370 counts, and the Government was successful in 222. The Government appealed 61 cases and the railroads 195. During the year there was collected and paid into the Treasury the sum of $44,270 in penalties from the violations disposed of in that time. Penalties pending payment on June 30, 1916, amounted to $23,186, which does not include 133 counts in which the penalty has not as yet been assessed.

3. Ash-Pan Act.

There were only four violations of this act reported to the United States attorneys during the past year. Judgment was confessed as to one violation.

4. Twenty-eight Hour Law.

During the year there were transmitted to the United States attorneys charges and preliminary proofs of 465 violations of the law. For 383 violations penalties amounting to $52,450 were recovered. There were 1,085 cases pending at the close of the year.

5. Food and Drugs Act.

Under this act there were 978 cases, involving 1,364 violations of the statute, forwarded to the United States attorneys. There were 401 cases involving 787 violations which were criminal and 577 civil cases. During the past year 1,027 cases were terminated, 427 of which were criminal and 600 civil. There were 541 decrees of condemnation and forfeiture under which goods in 325 cases were ordered destroyed. Pending at the close of the year there were 435 cases, 233 of which were criminal and 202 civil. Fines amounting to $15,775.56 were assessed during the year. In addition to the foregoing, various health officers collaborating with the Department of Agriculture instituted 18 cases, 11 of which were criminal and 7 civil. This resulted in the recovery in fines of $105.

Under this act there were two important cases decided by the Supreme Court in favor of the Government (the Coca Cola and Eckman's Alterative cases), hereinafter referred to more in detail.

6. Insecticide Act.

During the year 87 cases under this act were reported, 76 of which were presented as criminal offenses and 11 as civil. Cases charging 103 violations were terminated during the year, 93 of which were

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criminal and 10 civil. Fines were imposed in 80 cases, amounting to $2,040. At the end of the year prosecutions involving 58 violations were pending. Sentence was suspended in 1 case.

7. Meat-Inspection Act.

There were 237 violations reported to the United States attorneys under this act, and there were convictions on 188 of the counts. In one alleged violation the verdict was for the defendant. At the close of the year 92 counts were still pending. Fines in 133 cases, amounting to $3,250, were imposed. Thirteen cases were dismissed, and in 8 the grand jury refused to find a true bill.

8. Animal-Quarantine Act.

There were reported to the United States attorneys 68 alleged violations of the act. During the year 103 prosecutions were terminated in favor of the Government and 3 adversely to the Government. The grand jury refused to return a true bill in 5 of the alleged violations. Fines amounting to $11,755 were imposed in 102 convictions, and in 1 case sentence was suspended. Forty-seven cases were dismissed, and 47 violations were pending at the end of the year.

9. Plant-Quarantine Act.

No violations of this law were reported to the United States attorneys during the year. Nine cases were pending at the close of the year.

10. Virus Act.

There were reported to the United States attorneys 38 alleged violations under this law. Two cases were pending at the beginning of the year. Fines amounting to $185 were imposed in 36 cases which terminated in favor of the Government. Twenty-eight of the violations were consolidated as one and a $100 fine imposed. In another case a fine of $50 was assessed and in seven others fines of $5 each. Three cases were dismissed. One case was pending at the close of the previous year.

11. Migratory-Bird Law.

The case of United States *v.* Shauver, involving the constitutionality of the law, was argued in the Supreme Court on October 18, 1915. The case was not decided, but assigned for reargument at the October term, 1916.

12. Lacey Act.

There were reported to the United States attorneys 51 violations of this act. In 31 cases fines were imposed aggregating $906. There were two sentences to jail—one for 3 months and one for 13 days. In one case sentence was suspended. Twenty cases were dismissed, and at the end of the year cases charging 33 violations were pending.

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ENFORCEMENT OF THE PUBLIC-LAND LAWS.[1]

At the beginning of the fiscal year 1916 there were pending 475 civil and 87 criminal cases affecting public lands. During that year 227 civil and 56 criminal cases were begun, and 223 civil and 87 criminal cases were disposed of, leaving 479 civil and 56 criminal cases pending at the end of the year. Of the civil matters disposed of, 133 were decided in favor of the Government, 24 were compromised, 38 were lost, and 28 were discontinued. In the criminal matters disposed of there were 36 convictions and pleas of guilty and 41 defendants discharged on orders of nolle-pros and 30 by acquittal, quashing of indictments etc. Damages were recovered during the year in the sum of $189,429.03, and costs in the sum of $24,903.92. Collections on civil judgments amounted to $164,035.63, including $10,420.17 paid on judgments entered during prior years. In criminal cases fines were imposed in the sum of $5,565 and $1,953.40 costs assessed; and $4,217.90 was collected. The Government recovered title to 128,511 acres of land, some of which is of unusually great value for its mineral content; and unlawful fences inclosing 40,980 acres of the public domain were abated. (See Exhibit 20.)

At the beginning of the fiscal year 1916 there were 24 cases involving public lands pending in the circuit courts of appeals and 28 were docketed in those courts and 27 disposed of during the year, leaving 25 pending on July 1, 1916. In 3 of the cases (which had been appealed by the defendants) the appeals were dismissed. In 18 of the 24 cases decided by the court of appeals the Government was successful and in 6 unsuccessful. There were also pending at the beginning of the fiscal year 1916 in the Court of Appeals of the District of Columbia 2 cases involving public lands. Four cases were docketed in that court during the year and 2 were decided, 1 in favor of and the other adversely to the Government, leaving 4 pending on July 1, 1916. (See Exhibit 19.)

There were pending in the Supreme Court of the United States on July 1, 1915, 5 cases affecting public lands, and during the fiscal year 1916, 12 such cases were docketed in that tribunal and 2 disposed of, both in favor of the United States, leaving 15 pending on July 1, 1916. (See Exhibit 19.)

On July 1, 1915, there were pending in the lower courts 1,946 civil and 6 criminal cases involving Indian lands. Many of the civil cases are multiple suits embracing numerous independent trans-

[1] In the following pages relating to litigation over public and Indian lands the term "case" is used to designate a single legal proceeding (which may involve one or several distinct transactions), with this exception: Many of the proceedings referred to under the head 'Suits to cancel unlawful conveyances of Indian allotments Five Civilized Tribes," involve large numbers of conveyances and defendants claiming thereunder. The proceedings are in course of being disposed of in parts, and therefore, as a matter of convenience in referring to them, the word "case" is used to indicate the individual transaction rather than the suit in which it has become involved.

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actions concerning separate tracts of land. Two hundred and seven civil and 2 criminal proceedings were instituted and 324 civil and 2 criminal cases terminated during the fiscal year 1916, leaving 1,829 civil and 6 criminal cases pending on July 1, 1916. Of the civil cases disposed of, 210 were decided in favor of and 26 adversely to the Government, 8 were compromised, and 80 discontinued. One of the criminal cases disposed of resulted in a verdict of acquittal and the other was nol-prossed. (See Exhibit 17.)

There were 27 cases involving Indian lands pending in the United States circuit courts of appeals on July 1, 1915; 6 were docketed in those courts during the fiscal year 1916, and 8 were decided during the same period, leaving 25 pending on July 1, 1916. Of the 8 decisions handed down, 6 were in favor of and 2 against the Government. One case involving Indian lands was pending in the court of appeals of the District of Columbia on July 1, 1915, and 2 were docketed in that court during the fiscal year 1916. During the year 2 cases were decided, both favorably to the Government, leaving 1 case pending on July 1, 1916. (See Exhibit 18.)

In the Supreme Court of the United States there were pending on July 1, 1915, 6 cases affecting Indian lands, and during the fiscal year 1916, 9 such cases were docketed in the Supreme Court and 5 decided (3 in favor of and 2 against the Government), leaving 10 cases pending in the Supreme Court on July 1, 1916. (See Exhibit 18.)

1. Oregon & California Railroad Land-Grant Suits.

In my last annual report I announced the decision of the Supreme Court in the main suit against the Oregon & California Railroad Co., which was substantially a victory for the Government, and stated that this department was then considering the matter with a view to the formulation of suggestions and recommendations to be laid before Congress for its more specific information and to aid it in providing for the ultimate disposition of the 2,364,000 acres of land involved. In accordance with the mandate of the Supreme Court, the district court for Oregon, on December 9, 1915, entered a decree enjoining the railroad company from making any disposition whatever of the land or the timber thereon, until Congress should have an opportunity to authorize such disposition thereof as it might see fit. From this decree the railroad company appealed to the circuit court of appeals, and the latter tribunal, on May 12, 1916, certified certain questions or propositions of law to the Supreme Court.

Meanwhile, bills had been introduced in Congress, the purpose of which was to provide a method of disposing of the lands. These measures received the prompt and careful consideration of both Houses and of the Department of Justice and other departments,

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and one of them (H. R. 14864) became a law on June 9, 1916 (Public, No. 86, 64th Cong.). This law revests title in the United States to so much of the lands as were unsold prior to July 1, 1913; provides for the disposal by the United States of the lands and the timber thereon; secures to the railroad company all the value conferred by the granting acts; fully safeguards the rights of the Government; and affords a large measure of relief to the people of Oregon.

A motion by the Government to advance the case in the Supreme Court at the present term has been granted and the case set for hearing on February 26, 1917, so that an early termination of this important litigation may be expected.

2. The Coos Bay Wagon Road Case.

My last report showed that in July, 1915, Judge Wolverton handed down his decision in this case, substantially following the decision of the Supreme Court in the case of United States *v.* Oregon & California Railroad Co., supra. On December 7, 1915, decree was entered, from which the defendant company appealed on December 9, 1915, to the circuit court of appeals, where the case was argued and submitted on May 10, 1916. Decision has not yet been rendered. In this proceeding brought against the Southern Oregon Co. the Government seeks to secure a forfeiture of title to some 96,000 acres of land in Oregon, valued at more than $5,000,000, which was originally granted to the State of Oregon to aid in the construction of the Coos Bay military wagon road and which, subsequently, by assignment from the State and mesne conveyances, passed to the defendant.

3. Litigation Concerning Oil Lands Reserved by the President.

In my last annual report (p. 36) I spoke of the Government's victory in the Midwest Oil Co. case (236 U. S., 459) and of the special appropriation of money which Congress had immediately made for carrying on this litigation. I referred briefly to the cases then in court, and suggested that, later, I might make a further statement concerning the whole subject matter for the consideration of Congress. Such a statement in the form of a supplementary report was prepared and submitted by me on January 18, 1916. For the convenience of Congress I now reprint that report, with its appendixes, as an exhibit hereto. (See infra, Exhibit 31.) I invite particular attention to it and also to the statements made orally by myself and my assistants at the hearings held by the Senate Committee on Public Lands in February and April last concerning House bill 406 and the so-called Phelan amendment. (See printed report of hearings, pp. 343, 354, 425.)

The volume and importance of the actual litigation has grown considerably since the supplemental report was made. The total number of suits thus far begun is 30, of which 27 are in California

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and 3 in Wyoming. The bills of complaint allege that the lands involved in these cases—some 6,430 acres—are worth upward of $19,000,000. Twenty-one of the cases were filed during the fiscal year ended June 30, 1916, and during that year also seven cases in California were brought to hearing and resulted in decisions favorable to the Government, the court finding that the oil operators were trespassers and directing that an account of damages be taken before a master. Title to 1,078 acres of oil-bearing lands, said to be worth $1,400,000, is thus practically quieted in the United States. The other suits in California are being brought to trial and heard as rapidly as possible. In Wyoming the Mid-west Oil Co. paid an agree sum by way of damages during the present fiscal year, and its case is thus finally disposed of; the case against the Ohio Oil Co. went adversely to the Government in the district court and was taken to the circuit court of appeals, which within the last few days has affirmed the decision below; the third Wyoming case (against Hanley and others) remains pending upon a stipulation under which the proceeds of oil are impounded.

Since the date of my special report the moneys in the hands of the receiver in California have grown from $1,592,917.07 to approximately $4,000,000. In addition to this, $153,760.48 is impounded in banks by stipulation in cases where there has been no receivership; and $365,000, which was similarly impounded by purchasing companies, has been ordered by the court to be turned over to the receiver. The receiver also has custody of 300,000 barrels of oil, worth $200,000, and official supervision under court order of 1,300,000 barrels additional, now in the custody of the General Petroleum Co. and the General Pipe Line Co., valued at $925,000. Receiverships have been granted in 19 of the 27 California cases and have been applied for in 7 more. In one of the cases only has no such application been made, and this because the suit was but recently filed, and the subject matter seems not to lie in immediate danger.

On pages 13 and 14 of the special report mention is made of withdrawn oil lands in Louisiana. The Secretary of the Interior has requested this department to take action for the protection of the interests of the United States in those oil fields, and I accordingly have given instructions for the commencement of suits to quiet title to 670.05 acres lying adjacent to the so-called " Ferry Lake," above high-water mark.

4. Suits Against the Southern Pacific Railroad Co. Concerning Oil Lands.

My last report announced, in respect of the case of United States *v.* Southern Pacific Co., No. 221, filed in the southern district of California, a decision revesting in the Government title to 6,000 acres of

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oil-bearing lands in the Elk Hills, San Joaquin Valley, Cal., estimated as worth $18,000,000. Decree was entered accordingly on August 5, 1915, and on February 1, 1916, an appeal was taken by the defendant to the circuit court of appeals, where the case is now pending.

In one of the six remaining suits against the Southern Pacific Co. (No. 46, civil) the Government's testimony in chief has been taken, of which, it is understood, such part as is applicable to the other five cases may be used in the hearing thereof; so that considerable and satisfactory progress has been made during the past year in all six of the cases pending in the district court. The lands involved in this Southern Pacific Railroad oil-land litigation aggregate over 150,000 acres and are said to be worth about $500,000,000.

Concerning this litigation see also my supplemental report of January 18, 1916, to which I have referred in the discussion of litigation over reserved oil lands.

5. The Oklahoma River Bed Cases.

There are five of these cases growing out of the discovery of valuable deposits of oil and gas under the beds of the Arkansas and Cimarron Rivers in Oklahoma. In two of them, pending in the western district of Oklahoma, the Osage Indians claim to the middle of the main channel of the Arkansas River, where that stream bounds the Osage country. The remaining three cases are pending in the eastern district of Oklahoma. Two of these involve the Arkansas and one the Cimarron River, the Creek Indians claiming the entire river bed of both streams, where they flow through the Creek country.

In all five cases the State of Oklahoma and its lessees claim that the title to the river bed is vested in the State, contending that the rivers are navigable. Riparian allottees in both districts claim to the thread of the stream, contending that the rivers are not navigable. The Government in all of the cases claims the river beds for the Indians, contending with the allottees against the State that the Cimarron is not navigable, and that the Arkansas is not navigable above the Grand River, and also that title to the river beds is vested in the Indians, irrespective of navigability. The Government also contends in favor of the tribes that the allottees are restricted to the meander lines. In the case of the Osages the minerals are reserved to the tribe. The value of the properties actually in controversy is said to be about $20,000,000.

Receivers have been appointed, one in the eastern and one in the western district of Oklahoma. The two cases in the western district were consolidated, tried, and submitted in January, 1916. Decision has not yet been handed down. It was stipulated by all the parties

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to all the suits in both districts that the evidence submitted in the two cases in the western district may be used in the three cases in the eastern district. It is expected that the suits in the eastern district will have been heard before this report is laid before you.

In one of the suits in the eastern district a lessee of riparian allottees intervened and sought an injunction against the State's lessee, who was operating in the Cimarron River bed under an agreement with the United States. From an interlocutory order denying the injunction prayed, the riparian allottees' lessee (the Producers Oil Co.) took an appeal to the circuit court of appeals, where the case was argued and submitted on May 19, 1916. Decision has not yet been rendered.

6. United States *v.* Exploration Co. (Ltd.) et al.

Last year I reported a decision on the merits in this case in favor of the Government, canceling, on grounds of fraud committed in connection with their procurement, patents to 1,120 acres of coal lands in Colorado. Decree was entered accordingly on August 18, 1915. On February 24, 1916, the defendant company appealed to the circuit court of appeals, where, on August 7, 1916, the decree was affirmed.

Adhering to the doctrine laid down by the circuit court of appeals in the former appeal of the case, that the six-year statute of limitations does not begin to apply to suits of this character while the fraud is concealed, both courts in these later decisions have declared that, in the absence of negligence, mere failure of the Government to discover a fraud which naturally concealed itself will stay the operation of the statute. It is not necessary under these decisions for the Government to plead or prove that its ignorance of the fraud is attributable to affirmative acts of concealment practiced by guilty parties. (See 225 Fed., 854; the second case not yet published.) The defendant has appealed to the Supreme Court.

7. Sunk-Land Cases in Arkansas.

These are suits brought to quiet the Government's title to a considerable area of the most valuable lands in Arkansas which were erroneously designated by early surveys as "lakes," while, as a matter of fact, they were lands in place, temporarily overflowed at the time of survey by flood waters of the Mississippi. Previous reports have dealt with the test case of United States *v.* Lee Wilson & Co., which has been won by the Government in the district court and the court of appeals. On February 28, 1916, the defendants perfected an appeal to the Supreme Court of the United States, where the case will be argued during the present term.

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In five other cases in which the Government sought to quiet title to some 13,000 acres, decisions were handed down on June 19, 1916, in favor of the Government as to 11,528.57 acres. Decrees will be entered accordingly.

Three additional suits of the same character were filed during the fiscal year 1916, affecting over 8,000 acres of land valued at $265,000, and seeking, in addition, recovery for timber valued at over $320,000.

This "sunk-land" litigation affects, in all, about 100,000 acres of land, estimated conservatively to be worth $3,500,000.

8. Water Rights.

Further progress has been made in safeguarding the water rights appurtenant to the national reclamation projects and those reserved for the benefit of the Indians. Certain old suits have been revived by owners of land bordering on Lake Tahoe, in California, with a view to preventing the enforcement by the Government officials of the decree, mentioned in my last annual report, regulating the storage of water in that lake. These suits are receiving the attention of the Government attorneys. A proceeding brought by the Government in the Federal court in Nevada to adjudicate all the water rights of the Truckee River has made substantial progress and is now ready for the taking of evidence. Two new and important suits have recently been commenced to preserve Indian water rights in the Uinta Basin, Utah.

9. Occupation of National Forests by Power Companies.

I have heretofore reported the success of the Government in the United States District Court for Utah in five suits filed to restrain various power companies from operating power plants and transmission lines within national forests without complying with the regulations of the Secretary of Agriculture, and that the defendants have taken appeals in all five cases—in three instances to the Supreme Court direct and in two cases to the circuit court of appeals. In all cases the United States filed cross appeals on the minor matter of right to compensation for past use of the lands involved. In one of the cases appealed to the circuit court of appeals the court, on November 24, 1915, sustained the cross appeal of the Government and remanded the case with instructions for an accounting as to the value of the use and occupation of the lands by defendant. In the other case appealed to the circuit court of appeals, the court, on November 24, 1915, reversed the decree in favor of the Government and directed further proceedings on the question of vested rights. In these two cases it has been stipulated that the mandates shall be withheld pending decision by the Supreme Court in the three cases there. The latter were advanced and have now been argued and submitted.

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10. Northern Pacific Railway Suits.

These are 12 actions in ejectment brought by the Northern Pacific Railway Co. in the Superior Court of Stevens County, Wash., in January, 1911, to eject certain homesteaders from lands in that State. The lands involved had been homesteaded under the President's proclamation of May 22, 1909, and the provisions of the act of May 29, 1908 (35 Stat., 458). The railroad company claimed the lands under the act of July 2, 1864 (13 Stat., 365), alleging its title to have accrued on October 4, 1890, when the map definitely locating its line was filed. The Government intervened in behalf of the settlers and one of the cases, that against George F. Wismer, was removed to the Federal court on April 16. 1915, and resulted on August 11, 1915, in a decision favorable to the Government's contentions. An appeal was taken by the railroad company in February, 1916, to the circuit court of appeals, where the decision of the court below was affirmed, the appellate court holding that at the time the railroad company filed its map of definite location there was such an existing claim on the part of the Indians to the lands in controversy as to take them out of the category of public lands, to which alone the grant to the railroad company could apply. The defendant, on April 20, 1916, docketed an appeal in the Supreme Court of the United States from this decision.

11. Suits to Cancel Unlawful Conveyances of Indian Allotments.

(A) FIVE CIVILIZED TRIBES.

During the fiscal year 1916, 6,903 of these disputed conveyances were finally passed upon, 2,120 by decrees favorable to the Government, and 4,783 by dismissals. Of the latter, 3,173 transactions were dismissed from the litigation because the lands involved were restored to the Indians without trial; so that, in fact, 5,293 transactions were disposed of favorably to the Government. Title was thus quieted in the Indians during the year to some 842,568 acres, estimated as worth in excess of $8,000,000. Seven thousand and seventy-eight transactions involving 1,009,059 acres of land are still in question in the suits pending. It is expected that this entire litigation will be practically disposed of during the present fiscal year.

(B) SUITS AFFECTING TITLE TO SEMINOLE ALLOTTED LANDS.

These are suits usually instituted in the State courts of Oklahoma by individuals against Seminole allottees for a variety of purposes, all, however, relating to the allotted lands of the Indians. Some few are cases instituted by allottees to quiet title to their allotments. In such proceedings the United States, through special counsel, ap-

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pears in behalf of the Indians. A few years ago there was much of this kind of litigation, much of it unjustified or founded in fraud, affecting Seminole lands, but the activities of the Government's representatives have discouraged it to such an extent that during the past year there were but 39 cases in all demanding the Government's attention. Of these, 12 were disposed of (4 in favor of and 4 adversely to the Indians, 3 compromised, and 1 discontinued), leaving 27 pending at the beginning of the current fiscal year. Two cases decided in favor of the Indians in the trial court were appealed by the adverse parties to the Supreme Court of Oklahoma, where the decisions below were affirmed during the fiscal year 1916.

(C) ALLOTMENTS IN THE WHITE EARTH INDIAN RESERVATION.

Previous reports have shown the institution of a large number of suits in Minnesota to recover for the Indians of the White Earth Reservation lands alleged to have been illegally conveyed because the allottees are full-blood Indians. On July 1, 1915, there were 1,168 of these suits pending; 9 were instituted and 47 terminated during the fiscal year 1916, leaving 1,130 pending on July 1, 1916. Of those cases disposed of, 40 were terminated in favor of and 6 adversely to the United States, and 1 was discontinued.

With the approval of the Secretary of the Interior, tentative agreements have been entered into with the attorneys representing about 90 per cent of the defendants for disposition of these cases out of court upon the following basis: In cases of full-blood Indians decrees will be entered in favor of the Government. In cases of mixed-bloods who are competent, decrees will be entered for the defendants. In cases of mixed-bloods who are incompetent, the titles will be made good in the purchasers and they will pay to the Government for the Indian in each case the difference between the amount of money or money's worth actually received by the Indian and the value of the allotment, including the timber thereon, at the time of the transaction, together with 6 per cent interest from that time until the date of settlement. Actual settlers and investors who paid fair value will be protected by those who dealt with the Indians or who knowingly received the benefit of such dealings.

The defendants who are holding out against the proposed settlements are actuated by the hope of obtaining a decision that the Government has no right to sue to redress the wrongs done to incompetent mixed bloods in whom the fee simple titles to their allotments were vested by the Clapp amendment (34 Stat., 353). This question was submitted to the Circuit Court of Appeals for the Eighth Circuit on September 8, 1916, in the case of United States *v.* Waller. This same group of defendants made a determined effort at the last session of Congress to procure the passage of a bill (H. R. 14731

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and S. 6715) calculated to circumvent every position taken by the department in this litigation, but without success.

Beginning in April, 1916, a vast amount of data necessary to the carrying out of the proposed settlements in detail has been gathered and classified by agents of this department and the Interior Department. The work of arriving at actual settlements of the cases is now progressing rapidly under the supervision of the attorney in charge of this litigation and a special representative of the Secretary of the Interior. It is expected that the most, if not all, of this troublesome business will be cleared away during the present fiscal year.

ENFORCEMENT OF THE WHITE-SLAVE TRAFFIC ACT.

During the past fiscal year there have been 494 indictments under the white-slave traffic act, 334 convictions, 54 cases nolle prossed, and 45 acquittals. There were 400 cases pending at the close of the fiscal year.

These figures show an increase of 4 indictments, 32 convictions, and 2 cases nolle prossed, and a decrease of 7 acquittals over the previous fiscal year. The total convictions under this act from its passage to the end of the past fiscal year were 1,537; acquittals, 238; cases nolle prossed, 239. The sentences imposed have aggregated 2,468 years, 3 months, and 16 days, and fines $172,059.50.

The convictions obtained during the past fiscal year include that of one of the most notorious white-slave operators in the country, a man who was known as the "boss of the underworld" in one of the largest cities in the United States.

The same need for legislation enabling wives to testify against their husbands and granting immunity to essential witnesses as a means of preventing them from refusing to testify on the ground of self-incrimination exists, as was shown by my report for the previous fiscal year.

ENFORCEMENT OF NEUTRALITY.

During the past year (as in the previous year and since August, 1914), the regular work of the department has been tremendously augmented by the legal problems connected with the European war. Many of the questions presented in the prosecutions initiated and in opinions rendered to other departments of the Government have been without precedent. The labors of the special agents of the Bureau of Investigation have been very great and country-wide in investigating reported breaches of our neutrality and other criminal laws arising out of war conditions. Careful daily scrutiny of agents' reports has been necessary in order that prompt measures might be taken to prosecute such violations of Federal law. Many of the actions investigated, however, have been found to constitute violations of State rather than Federal laws. The inadequacy of our Federal

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criminal laws relative to neutrality and foreign relations and the necessity for their complete revision have been clearly proved.

Since the beginning of the European war, over 30 indictments have been found in various parts of the country, and upward of 110 persons have been indicted. Within the past year, 15 indictments, involving 84 persons and corporations, were returned and 21 persons and corporations were convicted. Most of the plots against our laws were so carefully laid as to render it extremely difficult to obtain evidence. There has at no time, however, been any relaxation in the effort to enforce the law rigorously and impartially and regardless of the nationality of the persons involved.

The Mexican situation has also added greatly to the work of the department. Special efforts have been made to prosecute all violations of the neutrality laws—including those forbidding enlistment for service in foreign armies, preparation of military expeditions, and importation of munitions of war into Mexico in violation of the presidential embargo under the joint resolution of 1912. In the past year there have been 13 indictments by grand juries and 60 persons indicted, of whom 25 have been convicted. Evidence of an intended military expedition is difficult to obtain, and the scope of the Federal criminal statute is extremely limited. While therefore the department may be convinced that military or political refugees from Mexico in this country are intending or plotting to promote uprisings in Mexico, no arrests can be made until by their actions they bring themselves specifically within the restricted scope of the Federal criminal statutes. Mere plotting alone is not criminal. The planning or preparation in this country of a military expedition which is designed to start from a point outside this country seems not to be forbidden by law. Hence, many activities which produce constant friction can not at present be reached.

Among the more important cases are the following:

1. *United States* v. *Huerta, Pasqual Orozco, and others.*—The defendants in this case, which was mentioned in my last annual report, and which involved attempts to set on foot in this country a military expedition against Mexico, have been indicted and the trial is set for the next term of court at San Antonio, Tex. Of the principal defendants, Huerta died and Pasqual Orozco was killed.

2. *United States* v. *Werner Horn.*—The defendant in this case, in which the indictment was reported in my last report, after appealing unsuccessfully to the United States circuit court of appeals, has taken his case to the Supreme Court. He is charged with unlawfully transporting on an interstate passenger train the dynamite with which he tried to blow up the international bridge at Vanceboro, Me.

3. *United States* v. *Ralph K. Blair and others.*—This case was mentioned in my last report. Defendants Blair and Addis have been convicted and fined $1,000 each. The case, which involves the securing in this country and the sending to England of recruits for the British Army, has been appealed.

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4. *United States* v. *Hamburg-American Line, Bunz, Koetter, Hachmeister, and Poppinghouse.*—The defendants in this case, which involved the filing of false manifests and the securing of clearance papers in efforts to send supplies to war vessels of Germany, were convicted in the southern district of New York. The corporation was fined $1, the first three individuals named above sentenced to one year and six months in the penitentiary at Atlanta, and the last-named defendant to one year and one day in the same institution.

5. *United States* v. *Harry Soloman and others.*—This case, which grew out of the filing of false shipping manifests in an effort to get rubber to Germany, terminated through pleas of guilty on behalf of five defendants and the imposition of fines aggregating $2,100.

6. *United States* v. *H. J. Thompson.*—The defendant in this case has been convicted and sentenced to three months in jail and to pay a fine of $500 for recruiting men for service in the British Army.

7. *United States* v. *Ernest Schiller.*—In this case the defendant attempted to capture a vessel single-handed. He was convicted of piracy and sentenced to a life term in the Atlanta Penitentiary.

8. *United States* v. *Fay, Scholz, and others.*—In this case the defendants conspired to place explosives on vessels carrying munitions of war for the Allies in efforts to destroy them. Fay, Scholz, and Daeche have been convicted and sentenced to terms in the Atlanta Penitentiary of eight, four, and two years, respectively. Fay has recently escaped from the penitentiary and has not yet been recaptured.

9. *United States* v. *Enrique Flores Magon and Ricardo Flores Magon.*—In this case the defendants were convicted and sentenced to terms in the penitentiary of three years and one year and one day respectively and each fined $2,000, for circulating unlawful matter through the mails in connection with plans for revolutions in Mexico.

10. *United States* v. *Max Jaeger and five others.*—These defendants were indicted for conspiracy to defraud the United States in connection with their efforts to get rubber into Germany. All plead guilty and were fined a total of $3,400.

11. *United States* v. *Harry Max Zelinka and others.*—Zelinka plead guilty to a charge of conspiracy to defraud the United States in the securing of an American passport, he being an Austrian citizen. He was sentenced to pay a fine of $200 and to imprisonment for one week.

12. *United States* v. *Golden Gate Transportation Co., Robert Capelle, et al.*—In this case 12 defendants are charged with conspiracy to defraud the United States through the filing of false manifests, etc., in connection with the sending of supplies to German warships.

13. *United States* v. *Franz Rintelin and Andrew D. Meloy.*—In this case the defendants are under indictment for conspiracy to defraud the United States because of efforts made to obtain an American passport for the former, who is a German naval officer, who was in this country on a secret mission.

14. *United States* v. *Paul Kocnig and Richard Emil Leyendecker.*—These defendants are under indictment for having set on foot in this country a military enterprise directed against the Welland Canal in Canada.

15. *United States* v. *Hans Tauscher, Franz von Papen, Wolf von Igel, Alfred A. Fritzen, and Constantine Covani.*—The charges in this case are the same as in the preceding case, but relate to an earlier attempt to destroy the Welland Canal. Tauscher, the only defendant yet tried, was acquitted.

16. *United States* v. *Walter T. Scheele, Charles von Kleist, Otto Wolpert, Ernst Becker, Frederick Karbade, George Praedel, Wilhelm Parades, Eno Bode, and Carl Schmidt.*—The defendants are under indictment for conspiracy to

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destroy vessels carrying supplies to the allies through the use of fire bombs secretly placed on board such vessels.

17. *United States* v. *Walter T. Scheele, Gustav Steinberg, and Wolf von Igel.*—The defendants in this case are under indictment for conspiracy to defraud the United States in connection with the shipment of a quantity of lubricating oil under the false designation of "fertilizer."

CRIMINAL CASES UNDER THE NATIONAL BANKING LAWS.

During the fiscal year ended June 30, 1916, 86 cases of alleged criminal violation of the national banking laws were reported to the department. Fifty-four cases of this character, involving 60 defendants, were brought to trial during the year, resulting in 47 convictions and 13 acquittals; in addition to the foregoing, 17 indictments were returned, but not disposed of, during the year. This represents a substantial increase over the fiscal year ended June 30, 1915, in which 44 bank cases, involving 52 defendants, were tried, resulting in 36 convictions and 16 acquittals.

The systematic control and direction of such cases by this office has developed a high degree of efficiency in the practical administration of the criminal provisions of law relating to national banking associations.

A summary of the adjudicated cases follows:

(A) CONVICTIONS.

United States v. *A. O. Johnson.*—Clerk, Fifth-Third National Bank, Cincinnati, Ohio. Embezzlement. Sentence, five years. November, 1915.

United States v. *W. P. Phillips.*—Cashier, First National Bank, Vinita, Okla. False entries. Sentence, five years. February, 1916.

United States v. *M. M. Lowrey.*—Cashier, Americus National Bank, Americus, Ga. Misapplication; false entries. Sentence, five years. November, 1915.

United States v. *A. J. Finlayson.*—Teller, First National Bank, Amsterdam, N. Y. Embezzlement. Sentence, five years. February, 1916.

United States v. *Wm. T. Brice.*—Bookkeeper, First National Bank, Amsterdam, N. Y. Conspiracy. Sentence, two years. February, 1916.

United States v. *Richard Murphy, Eugene F. E. Oppenheim, and H. J. Rogers.*—Aiding and abetting Brice in abstracting and misapplying funds of First National Bank of Amsterdam, N. Y. Sentence, five years each. October, 1915.

United States v. *Henry J. Nichols.*—Aiding and abetting Brice as above. Sentence, five years. February, 1916.

United States v. *A. J. Biard.*—Assistant cashier, First National Bank, Hugo, Okla. Embezzlement. Sentence, five years. November, 1915.

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United States v. *E. E. Lewis.*—Cashier, National Bank of Commerce, Coweta, Okla. Misapplication; false entries. Sentence, five years. April, 1916.

United States v. *McCalla Fitzgerald.*—Cashier, First National Bank, London, Ky. Misapplication; false entries. Sentence, five years. May, 1916.

United States v. *W. D. Cole.*—Bookkeeper, State National Bank, Oklahoma City, Okla. Abstraction. Sentence, five years. June, 1916.

United States v. *Charles S. Lawson.*—Teller, Exchange National Bank, Little Rock, Ark. Misapplication. Sentence, five years. April, 1916.

United States v. *W. H. Cummins.*—Aiding and abetting Lawson, as above. Convicted, April, 1916. No record of sentence.

United States v. *John Oltmann.*—Paying teller, Ridgewood National Bank, Ridgewood, N. Y. Embezzlement. Sentence, five years. November, 1915.

United States v. *John Finnegan.*—Bookkeeper, First National Bank, Rome, N. Y. Abstraction; false entries. Sentence, five years. May, 1916.

United States v. *Carlos P. Cole.*—Teller, First National Bank, Ashley, Pa. Abstraction. Sentence, five years. November, 1915.

United States v. *H. C. Haff.*—Cashier, First National Bank, Islip, N. Y. Misapplication; false entries. Sentence, five years. October, 1915.

United States v. *W. H. Garanflo and R. D. Duncan.*—President and cashier, respectively, State National Bank, Little Rock, Ark. Misapplication. Convicted, April, 1916. No record of sentence.

United States v. *A. E. Cook.*—Cashier, Closter National Bank, Closter, N. J. Embezzlement. Sentence, five years. October, 1915.

United States v. *John N. Deglman.*—Assistant cashier, National Citizens Bank, Mankato, Minn. Embezzlement. Sentence, five years. November, 1915.

United States v. *E. I. Emerson.*—Cashier, National Bank of Montgomery, Montgomery, N. Y. Embezzlement. Sentence, six years. October, 1915.

United States v. *Max Palenske.*—Assistant cashier, Drovers National Bank, Chicago, Ill. Embezzlement. Sentence, five years. October, 1915.

United States v. *DeForest W. Gove.*—Teller, Dexter-Horton National Bank, Seattle, Wash. Embezzlement. Sentence, five years. October, 1915.

United States v. *John Hornung.*—Cashier Dresden National Bank, Dresden, Ohio. Embezzlement. Sentence, 13 years. December, 1915.

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United States v. *V. V. Foitik.*—Teller, Livestock National Bank, South Omaha, Nebr. Embezzlement. Sentence, five years. April, 1916.

United States v. *L. L. Perrin.*—Teller, Cedar Rapids National Bank, Cedar Rapids, Iowa. Abstraction. Sentence, five years. October, 1915.

United States v. *George J. Homan, J. F. Harragan, and Charles Sieg.*—Cashier, vice president, and teller, respectively, Dubuque National Bank, Dubuque, Iowa. Embezzlement. Sentence, five years each. December, 1915.

United States v. *John F. Young.*—Messenger, Commercial National Bank, Kansas City, Mo. Abstraction. Sentence, five years. January, 1916.

United States v. *W. M. Roberts.*—Cashier First National Bank, San Mateo, Cal. Embezzlement. Sentence, five years. November, 1915.

United States v. *William C. Gannon.*—Clerk, Merchants-Laclede National Bank, St. Louis, Mo. Abstraction. Sentence, five years. June, 1915.

United States v. *George Roger.*—Cashier Canaan National Bank, Canaan, Conn. Embezzlement. Sentence, five years. October, 1915.

United States v. *John A. Duke.*—Bookkeeper, Clearfield National Bank, Clearfield, Pa. Abstraction. Sentence, five years. March, 1916.

United States v. *W. H. Tebbs.*—Cashier Farmers & Merchants' National Bank, Cisco, Tex. Embezzlement. Sentence, five years. February, 1916.

United States v. *Paul W. Sperling.*—Bookkeeper, Commercial National Bank, Saginaw, Mich. Abstraction. Sentence, five years. May, 1916.

United States v. *Earl D. Linnell.*—Clerk, Palmer National Bank, Palmer, Mass. Abstraction. Sentence, five years. January, 1916.

United States v. *A. H. Anderson.*—Bookkeeper, First National Bank, Sheldon, Iowa. Abstraction and false entries. Sentence, five years. June, 1916.

United States v. *Ernest G. Butler.*—Teller, National City Bank, Indianapolis, Ind. Embezzlement. Sentence, five years. May, 1916.

United States v. *E. A. Bunker.*—Bookkeeper, National State Capitol Bank, Concord, N. H. Abstraction. Sentence, five years. March, 1916.

United States v. *Lloyd M. Dean.*—Clerk, Indiana National Bank, Indianapolis, Ind. Abstraction. Sentence, five years. May, 1916.

United States v. *Colbert Cecil.*—Bookkeeper, Catlettsburg National Bank, Catlettsburg, Ky. Embezzlement. Sentence, five years. April, 1916.

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United States v. *C. W. Kay.*—Messenger, Whitney-Central National Bank, New Orleans, La. Embezzlement. Sentence, five years. April, 1916.

United States v. *G. C. Merriman.*—Bookkeeper, National Loan & Exchange Bank, Columbia, S. C. Abstraction. Sentence, five years. June, 1916.

(B) ACQUITTALS.

United States v. *John S. Cusack.*—Cashier, First National Bank, Wellington, Colo. Misapplication. December, 1915.

United States v. *W. G. Toedman.*—Aiding and abetting in misapplication of funds, Yates Center National Bank, Yates Center, Kans. November, 1915.

United States v. *George Carragan.*—President, First National Bank, Bayonne, N. J. Abstraction; misapplication. November, 1915.

United States v. *F. C. Cary.*—President, Barnesville National Bank, Barnesville, Minn. Misapplication. November, 1915.

United States v. *D. H. Young.*—Cashier, Citizens National Bank, Rockmart, Ga. Embezzlement. November, 1915.

United States v. *O. A. Harker, jr.*—Cashier, First National Bank, Johnston City, Ill. Misapplication. April, 1916.

United States v. *F. D. Clayton.*—Cashier, First National Bank, Englishtown, N. J. Embezzlement. February, 1916.

United States v. *R. C. Kittel.*—President, First National Bank, Casselton, N. Dak. False entries. July, 1915.

United States v. *P. L. Lawrence.*—President, First National Bank, Crowley, La. Misapplication. December, 1915.

United States v. *J. D. Stallworth.*—Cashier, First National Bank, Ganado, Tex. Misapplication. May, 1916.

United States v. *W. B. Slaughter.*—President, Mercantile National Bank, Pueblo, Colo. Misapplication. April, 1916.

United States v. *G. C. Averill.*—President, Vermont National Bank, Brattleboro, Vt. False entries. May, 1916.

United States v. *E. J. Hamill.*—Cashier, First National Bank, Kitzmillerville, Md. Misapplication; false entries. May, 1916.

(C) CASES DISMISSED.

United States v. *F. C. Grable.*—Aiding and abetting in misapplication of funds, First National Bank, Wellington, Colo. January, 1916.

United States v. *T. B. Merrill.*—Cashier, Putnam National Bank, Palatka, Fla. Misapplication. April, 1916. (Jury disagreed and case was afterwards dismissed.)

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BANKRUPTCY MATTERS.

Especial efforts have been made to prosecute vigorously criminal frauds connected with bankruptcy, and the department has cooperated heartily with business organizations in seeking to encourage honest merchants by punishing dishonest bankrupts. An investigation has been and is being made into the accounts and methods of administration of referees in bankruptcy throughout the country, resulting in opportunities for correction of many evils and much laxity of practice; need for such examination has been urgent; and attention is called to the work of the Bureau of Investigation in these matters. (See pp. 63–66, infra.)

ELECTION FRAUDS.

The convictions for election frauds in the district of Indiana referred to in my last annual report were affirmed by the Circuit Court of appeals. (*Aczel et al.* v. *United States*, 232 Fed., 652.)

A number of other investigations of election frauds have been prosecuted, the principal ones being in Colorado, Rhode Island, Texas, and West Virginia.

PEONAGE CASES.

Complaints and investigations of violations of the peonage law were somewhat less in number than during the previous fiscal year. Five indictments were returned as a result of investigations of this character.

MISCELLANEOUS PROCEEDINGS.

1. The case of *United States* v. *Federal Sugar Refining Co.*, for the recovery of duties withheld which was pending in the District Court for the Southern District of New York, was settled on a basis not involving fraud for the sum of $67,173.22.

2. The case of *United States* v. *American Sugar Refining Co.*, which was pending in the District Court for the Eastern District of Louisiana, was settled on a basis not involving fraud for the sum of $52,185.99.

3. Continued activities looking to the enforcement of section 32 of the Penal Code, prohibiting fraudulent impersonation of Government officers, have been necessary. As the result of investigations made by agents of the department 11 indictments and 10 convictions have been secured in such cases. In addition facts were developed in two cases which brought about the convictions of the defendants by State authorities. A noteworthy series of cases of this character not included in the foregoing figures has developed through the discovery of the operations of a notorious gang of blackmailers who, posing as Federal officers, have collected many thousands of dollars from various individuals through threats of prosecution for viola-

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tions of the white-slave-traffic act. Some of the members of this gang have already been sent to the penitentiary, and evidence has been secured which it is believed will soon result in the bringing of a number of others to justice.

4. At the request of the United States attorney for the District of Columbia and the superintendent of police of Washington, agents of the Department of Justice cooperated in the investigation of a number of so-called handbook cases, as a result of which more than 60 persons have been arrested, a number indicted, and several convicted. Additional indictments and trials are expected during the present fall.

5. The department conducted an exhaustive investigation and instituted criminal proceedings in connection with the overturning of the *Eastland*, an excursion steamship, at Chicago.

6. A number of investigations of violations of the act to incorporate the American Red Cross, the copyright laws, section 240 of the Criminal Code regulating the interstate shipment of liquor, and of cases of theft from interstate shipments have been made.

7. The Treasury Department referred to this department, during the year, 192 cases in which money advanced to Americans stranded in Europe at the outbreak of the war, under joint resolution No. 314 of August 5, 1914, had not been repaid. The loans averaged less than $125 apiece, but totalled $23,263.65. In each case an investigation has been made through the United States attorney's office, resulting sometimes in suit to enforce the debt, sometimes in regular partial payments, but more often in an abandonment of the claim as uncollectible. In the period intervening between the date when the obligations were incurred and the time they were submitted to this department, many debtors were lost sight of or died, and many became so reduced in circumstances that any judgment against them would be worthless.

REPORTS OF SOLICITORS.

1. Solicitor of the Treasury.

The report of the Solicitor of the Treasury shows that in 1,785 of the civil suits instituted during the past fiscal year the Government sought the recovery of specific amounts in the sum of $7,328,571.48, including claims forwarded to this office for suit to the amount of $11,086.17, but which were settled in full without suit; and that judgments in favor of the United States were rendered in certain classes of suits instituted during the year and prior thereto amounting to $481,182.10. Collections and deposits in these civil miscellaneous suits and claims amounted to $588,645.

In addition, fines aggregating $862,699.10 were imposed in 3,760 of the criminal cases instituted during the year, and fines collected

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and deposited during the fiscal year in these cases amounted to $374,649.06. Claims were settled by compromise upon the payment of the sum of $399,528.29, and there was deposited in the Treasury from unclaimed moneys remaining over five years in court registries, under sections 996 and 4545, Revised Statutes, the additional sum of $10,079.58, making the total amount collected and deposited in the Treasury under the direction of this office $1,372,901.93.

There were 5,410 bonds, contracts, leases, etc., examined and 158 written opinions given, and other matters disposed of which can not well be tabulated.

2. Solicitor of the Department of Commerce.

Summary of work done, fiscal year July 1, 1915, to June 30, 1916.

Contracts examined (approved, disapproved, drafted, redrafted, modified, involving expenditures amounting to $1,316,163)	245
Contracts examined (indeterminate amounts)	11
Bonds (approved, disapproved, drafted, redrafted, modified, involving expenditures amounting to $616,050)	299
Leases (approved, disapproved, drafted, redrafted, modified, involving expenditures amounting to $29,452)	45
Insurance policies on vessels, examined (in sum of $826,400)	14
Revocable licenses (approved, disapproved, drafted, redrafted, modified, involving expenditures amounting to $1,600)	33
Legal opinions rendered, formal and informal (memorandum)	341
Miscellaneous matters, embracing everything submitted for the advice or suggestion of the solicitor or for the formulation of departmental action not included in the foregoing items	1,278

3. Solicitor of the Department of Labor.

Summary of work done fiscal year July 1, 1915, to June 30, 1916.

Legal opinions rendered, formal	207
Claims, injured employee's compensation act, involving examination as to law and facts	3,213
Contracts examined, approved, disapproved, drafted, redrafted, or modified	167
Leases, examined, approved, or disapproved	32
Bonds, official, examined, approved, or disapproved	3
Bonds, contract, examined, approved, or disapproved	31
Bonds, alien immigrants, examined, approved, or disapproved	1,640
Miscellaneous matters embracing everything submitted for advice or suggestion of the solicitor, or for the formulation of departmental action, not included in the foregoing items	875

OPINIONS.

1. General.

During the fiscal year 40 opinions were rendered upon questions of law, 11 upon requests of the President, and 29 upon requests of the heads of departments.

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2. Title and Condemnation.

During the fiscal year 462 title opinions, relating to the purchase and condemnation of land by the United States, were rendered.

The purchase price of the lands thus acquired aggregated $3,459,171.

In addition, abstracts have been examined preparatory to the institution of numerous cases in condemnation now pending. These are in the main acquisitions of land authorized by the Weeks forestry law. The value of the land thus to be acquired can not now be definitely stated.

BUREAU OF INVESTIGATION.

1. Detection of Violations of Federal Laws.

The principal duty of this bureau is to aid in detecting violations of the Federal laws and to aid in collecting evidence bearing on complaints of alleged violations of those laws.

The laws which call for most of its energies in this regard are the white-slave act, the antitrust act, the neutrality laws, the bankruptcy act, and the act prohibiting peonage.

Under the white-slave act the number of complaints and the number of investigations increased slightly over those shown during the previous year, despite the fact that the energies of the agents of this service were to a very unusual degree devoted to investigations of matters affecting the neutrality of the United States in the European war. Notwithstanding the fact that more investigations were made and better results obtained during this year, the work was carried on at a saving of more than $7,000 over last year and at a saving of more than $23,000 over the fiscal year 1915.

Under the antitrust act there has been pending this year a monthly average of approximately 33 investigations, a somewhat smaller average than that which obtained during the preceding fiscal year.

Under the neutrality laws, on account of the trouble on the Mexican border and the European war, there has been a very large increase in the number of investigations, hundreds of these having been made.

Under the bankruptcy act there has been a monthly average of 26 investigations.

Under the peonage act there has been a monthly average of nine investigations.

Appended hereto is a statement showing in detail how the appropriation for detection and prosecution of crimes has been expended.

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2. Work of Expert Accountants.

During the past year the force of expert accountants has maintained its high standard of efficiency and the good results obtained have been gratifying.

Investigations were made by these accountants in 98 bank cases, 32 mail-fraud cases, 21 bankruptcy cases, and about 33 cases involving violations of the antitrust laws, neutrality laws, and other Federal statutes.

As stated in prior reports, the principal work of the accountants is in connection with the investigation and prosecution of criminal cases involving violations of the national banking laws. The number of such cases brought to the attention of the department was 86, as compared with 109 during the previous year. Fifty-four bank cases, involving 60 defendants, were brought to trial, resulting in 47 convictions and 13 acquittals. This represents a considerable increase over the fiscal year 1915, during which 44 bank cases, involving 52 defendants, were tried, resulting in 36 convictions and 16 acquittals.

The average number of accountants regularly employed during the fiscal year 1916 was 19, a decrease of 2, as compared with the previous year.

3. Examination of Offices of United States Court Officials.

The average number of examiners in the field during this year was a little more than 14½.

In addition to completing general examinations of the offices of court officials in a number of districts begun in the prior fiscal year, like examinations were commenced in 31 judicial districts.

It has been difficult during the past year to keep the examinations up to the standard of "one full round in two years," due to the great increase of the labor in the respective districts resulting from the examination of the offices of referees in bankruptcy which now constitutes a part of the general examination of each district.

In addition to the general examinations 18 special investigations have been made into matters falling within the general scope of examiners' duties. Twelve of these investigations were made by examiners and six by special agents. They relate to the conduct of court officials, qualifications of applicants for appointment, offices and accounts of individual court officers, etc.

The following statement shows the action taken in consequence of certain of these investigations:

In a southeastern district a referee in bankruptcy was found to have used a large amount of moneys belonging to estates. He was removed from office.

A clerk in an Atlantic coast district whose irregularities and resignation were noted last year has been indicted. He was acquitted on the trial of two indictments, but several other matters are still pending.

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In a far-western district a former deputy clerk was found to have converted official moneys to his own use. He was indicted but a demurrer was filed and sustained. The case is now pending in the Supreme Court.

In the northern district of Illinois suits to recover from clerks of courts interest moneys accruing on official funds are now pending in the circuit court of appeals.

In the southern district of Iowa the two remaining cases against E. R. Mason, former circuit clerk, and his official bondsmen stand for trial and it is expected that they will be disposed of at an early date.

The clerk of one of the circuit courts of appeals was found to have engaged in some questionable transactions with official moneys and other misconduct. His resignation has been accepted.

In the cases against former Clerk Oliphant, district of New Jersey, to recover certain moneys claimed by the Government as emoluments of his office, the circuit court of appeals has reversed the district court, holding that all profits retained by the clerk on contracts for printing records should be accounted for to the Government. It is expected that the cases will be retried at an early date.

In an Atlantic coast district, a referee in bankruptcy was found to have appropriated official funds. His resignation has been accepted.

In another eastern district it was found that deputy marshals transporting prisoners to the penitentiary had obtained sums of money from such prisoners to insure them special favors while en route to the prison and after arriving there. The deputies have been required to resign.

In another southeastern district the field deputy marshal referred to one and two years ago as having made irregular charges in his accounts has been indicted and filed a written plea of guilty and has been sentenced to pay the costs and be imprisoned one year and a day.

In a southwestern district a United States commissioner was found to have been obtaining money by questionable methods from applicants for internal-revenue certificates. He was ordered to show cause why he should not be removed from office, but the order was dismissed on his resignation being presented and accepted.

In another eastern district the deputy clerk referred to one and two years ago as having been using public funds for personal purposes entered a plea of guilty and paid a fine.

The conditions shown by the examination of the offices of referees in bankruptcy in some districts are generally satisfactory, but in others decidedly the reverse. As this is the initial round of such examinations, it is expected that the next round will find conditions much less involved.

Among the unsatisfactory conditions in the administration of the bankruptcy law may be noted the amount of assets consumed in attorneys' fees and other costs of administration, a tendency to enlarge the fee bill by practices which allow the referees fixed amounts either as fees or as "indemnity" for expenses, irregular and unlawful methods of administration, unnecessary delay in closing cases, etc.

As to the matter of expenses, satisfactory records have not been kept in all cases, but where such records have been kept it appears

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that, in some cases, the amounts collected by the referees as "indemnity" have been considerably in excess of the actual expenses of their offices, such excess amounting in one instance, as estimated by the examiner, to a sum in excess of $7,000 for a single year.

The jurisdiction of this department extends only to the investigation of official acts, records, and accounts, but the practice followed has been to transmit a copy of each report on the offices of referees to the district judge or judges for the district involved with notations calling attention to matters thought worthy of comment. In most districts the reports and accompanying letters have met with favorable reception, and through the action of the district judges gratifying progress has been made in securing the modification of existing practices and rules of court. The department is using its influence uniformly for expediting the settlement of cases, limiting "indemnity" to the actual expenses and otherwise promoting the observance and efficient administration of the law.

One useful end served has been the discovery of balances of assets in cases which were considered as disposed of, which balances have been carried to the "inactive" ledgers of the depository banks and will probably amount to a very large sum. In one district now under examination it seems that such balances will run into thousands of dollars. Many of these balances can be distributed to creditors and the remainder very largely or fully brought ultimately into the Treasury of the United States.

Special reports have been made by the examiners as to the income derived by referees in a few districts. The following figures are presented:

	Net income.
District A:	
Referee A—	
1914	$3,500.00
1915	4,400.00
District B:	
Referee A—	
1915	$3,644.69
1916	8,200.00
Referee B—	
1915	11,000.08
1916	7,541.68
District C:	
Referee A—	
1914	7,841.37
1915	8,425.27
Referee B—1915	8,045.00
District D:	
Referee A—1915 (approximate)	10,000.00
District E:	
Referee A—1915	7,286.45
Referee B—1915	14,147.44

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District F:	
Referee A—1915 (not quite a year)	$6,438.78
Referee B—1915	13,659.69
District G:	
Referee A—Average per year, Jan. 1, 1899. to June 30, 1915	14,754.99
Referee B—Same period	15,271.53

The following salaries provided by law for the judiciary are interesting by way of comparison:

Chief Justice of the United States, per annum	$15,000.00
Associate justices, per annum	14,500.00
Circuit judges, per annum	7,000.00
District judges, per annum	6,000.00

The referees are appointed and removable by the district judges.

It is believed that the personnel of the examiners' force was never more efficient than at present, nor has its work for many years been more productive of beneficial results.

The cost of the work of the examiners for the fiscal year 1916, including salaries and expenses, was approximately $54,000.

PRISONS, PARDONS, AND PAROLES.

1. United States Prisons, and Training Schools, Etc.

The total expense of the care and custody of all Federal prisoners in the Federal penitentiaries and in the various State penitentiaries, county jails, etc., throughout the country increased from $1,225,000 for the fiscal year 1915 to $1,412,000 for the fiscal year 1916. The reason lies in the increased number of prisoners, both those held for trial and those serving sentence. The per capita cost, however, again has been substantially reduced. The superintendent of prisons has continued to give special attention to that feature and, in person or by his agents, has visited a number of the institutions in his efforts to reduce the per capita costs. The reduction has been effected without injuring the service in any instance; on the contrary, the service in some instances has been improved.

The number of United States prisoners in confinement in the United States penitentiaries at Atlanta, Ga., Leavenworth, Kans., and McNeil Island, Wash.; the Government Hospital for the Insane (now known as St. Elizabeth's Hospital); the National Training School for Boys; and in State institutions other than county jails (that is, the penitentiary class of prisoners) was 4,276 on June 30, 1916, as compared with 4,021 on June 30, 1915, an increase of 255. Of this 4,276, 3,365 were confined in United States penitentiaries, 432 in State and Territorial penitentiaries, 72 in State reformatories and training schools, 119 in penitentiaries, houses of correction, and workhouses which receive prisoners for terms of not more than one year, 157 in the National Training School for Boys at Washington,

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D. C., 1 in the National Training School for Girls, Washington, D. C., and 130 in St. Elizabeth's Hospital, Washington, D. C.

(A) PENITENTIARY AT ATLANTA, GA.

The average daily population during the fiscal year 1916 was 1,139; for 1915 it was 893. There were 11 deaths, 5 more than during the previous year. The average yearly cost of maintenance per man during 1916 was $207.93; during 1915 it was $245.60. The daily cost per man for 1916 was $0.568; for 1915 it was $0.673; for 1914, $0.702. The total cost of maintenance during 1916 was $236,830.63. This reduction in cost of maintenance is the greatest in the history of the institution; it is due only in part to the increased average population; the elimination of unnecessary waste was the important factor.

During the year the prisoners were employed in the erection of new prison buildings, the cultivation of the prison farm and the usual prison duties. The farm produced supplies of the value of $16,215.48, at a cost of $3,872.46, making a net profit of $12,343.02, which is an increase of $2,186.04 over the previous year.

During the year the new hospital building was completed, furnished, and occupied; the bath, laundry, and tailor shop building was completed and occupied and additional laundry machinery installed.

(B) PENITENTIARY AT LEAVENWORTH, KANS.

The average population during the fiscal year 1916 was 1,664; for 1915 it was 1,160. There were 14 deaths during the year, 2 more than during the previous year. The average yearly cost of maintenance per man during 1916 was $217.39; during 1915, $224.91; during 1914, $244.55. The daily cost per man for 1916 was $0.594; for 1915, $0.616; for 1914, $0.67. The total cost of maintenance during 1916 was $361,772.36.

During the year the prisoners were employed in the erection of new prison buildings, the cultivation of the prison farm, and the usual prison duties. The east main cell wing was brought to a state of completion, permitting it to be fully occupied by prisoners; there remains only some painting to be done in this wing, but this does not seriously interfere with the occupancy of the wing. Work on the west main cell wing has progressed satisfactorily, and it is estimated that this wing will be completed ready for occupancy by the winter of 1917.

The value of the farm products for the year was $15,288.67 and the cost of production $3,971.12, making a net profit of $11,317.55.

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(C) PENITENTIARY AT M'NEIL ISLAND, WASH.

The average daily population during the fiscal year 1916 was 212; for 1915 it was 212. There was 1 death as compared with 3 during the previous year. The average yearly cost of maintenance per man during 1916 was $200.97; during 1915, $203.13. The daily cost per man during 1916 was $0.549; during 1915, $0.556. The total cost of maintenance during 1916 was $46,149.16.

During the year the prisoners were employed in excavating and filling, sinking artesian wells, cultivation of the prison farm, and the usual prison duties.

(D) NATIONAL TRAINING SCHOOL FOR BOYS.

The report of the board of trustees shows that there were confined in the school on June 30, 1916, 424 juvenile offenders, as compared with 381 on June 30, 1915. There were received during the year 1916, 270 juvenile offenders; during 1915, 208. Of those received during 1916, 8 were committed by the Supreme Court of the District of Columbia, 133 by the Juvenile Court of the District of Columbia, and 90 by the United States courts. There were returned to the school 33 paroled boys and 6 escaped boys.

The board asks for a quarantine annex to the school hospital to cost $5,000 and an additional family building to cost $10,000.

(E) NATIONAL TRAINING SCHOOL FOR GIRLS.

The report of the board of trustees of the National Training School for Girls shows that on June 30, 1916, there were 77 inmates. During the year there were 24 commitments and 29 paroles. Of those paroled 8 were returned to the school.

(F) BUREAU OF CRIMINAL IDENTIFICATION.

During the year ended June 30, 1916, 36,036 records were received, of which 30,621 were finger-print records and 5,415 anthropometric or Bertillon records. During 1915, 23,854 records were received. There were on file at the close of the year 1916, 119,615 finger-print records, 47,979 Bertillon records, and 178,825 index record cards. During the year 6,437 identifications were made, of which 738 were by the Bertillon system and 5,699 by the finger-print system. Among the number identified were 73 parole violators and 36 escapes. The bureau sent out 22,679 pieces of criminal information or records during the year.

During the year this bureau added to its list of contributors 9 penal institutions and 104 police departments and sheriffs; this is an increase of nearly 96 per cent over the total of all prior years since

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the bureau was established. Records are now being exchanged with 47 penal institutions, 145 police departments, and 39 sheriffs and others. These records are from practically every State in the Union and are of all types of criminals. Within the near future it is hoped to have the entire country covered with this service.

2. Employment of Prisoners.

For the last 16 years the prison labor at the Atlanta and Leavenworth Penitentiaries, with the exception of the portion required to cultivate the farms and perform the usual prison duties, has been employed in construction work. As the work has progressed United States prisoners confined in State institutions have been gradually withdrawn therefrom and placed in the two prisons referred to. This construction work has now been largely completed and it is contemplated that within one year all United States convicts will be in the immediate custody of the Federal Government.

At this time about 1,200 prisoners are confined at Atlanta and about 1,800 at Leavenworth. Normally there are more. The normal aggregate for both institutions can be estimated at close to 3,500. As about 1,000 of these are engaged in prison duties and on the farms, there are now, or shortly will be, about 700 idle men at Atlanta and about 1,000 at Leavenworth. When the construction work is finished there will be about 2,500 idle men available for industries. It is essential that some plan for their employment should be promptly adopted and carried out.

Here, then, is a large force of men capable of producing, with care, training, and encouragement, a large volume of manufactured articles. Assuming that each prisoner could earn so small a sum as $1 a day, this population has a potential value of $2,500 per day, or $750,000 per year of 300 working days.

Not only would it be an economic waste not to make use of this labor, but it is absolutely essential that no portion of it should remain idle. It is also desirable that these men should become skilled in industries which would enable them to more readily earn a livelihood on being released.

To meet this situation, this department has in mind the installation of industries for the manufacture of supplies for the use of the Government. A furniture factory at Leavenworth and a textile mill and twine plant at Atlanta have been carefully considered. It has been thought that ultimately all the office furniture used by the Government might be made at Leavenworth and that a textile mill at Atlanta might make mail bags, blankets, cotton duck for tents, etc. A twine plant could turn out material for the Post Office Department, which uses about a quarter of a million dollars' worth annually.

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It is reasonably hoped that within a comparatively short time the institutions could be made largely, if not altogether, self-supporting, representing a saving to the Government of $500,000 or more yearly, which would otherwise have to be appropriated.

I presented to the last session of Congress two bills providing for the plants above referred to. These bills were tentative and accompanied by figures and data laboriously compiled with a view of assisting Congress in dealing with the entire problem.

Recognizing the desirability of the plan, but apparently not feeling sufficiently advised as to details, Congress at its last session inserted the following provision in the general deficiency act:

> There is created a commission, to be composed of the Chief of Ordnance of the United States Army, the Chief of Ordnance of the United States Navy, the Superintendent of Prisons of the Department of Justice, and the purchasing agent of the Post Office Department, who shall serve without additional compensation and who shall report to Congress not later than the first Monday in December, nineteen hundred and sixteen, detailed estimates and plans for equipping the United States penitentiaries for the manufacture, by the prisoners, of various articles used by the Government. Such report shall indicate what articles it is thought desirable to be so manufactured; the cost of equipping existing buildings and the erection and equipping of any other necessary buildings; the probable cost of manufacture of such articles and the price now paid under contract; and such other data as may be pertinent to the general inquiry. For expenses of the commission, to be paid on vouchers to be approved by the chairman, who shall be selected by the members thereof, $5,000.

Acting under this authorization, the commission has been organized, taking over the data previously assembled, has employed an expert assistant, and, I am informed, will be prepared to present a report about the time the approaching session is ready to receive it. Without knowing what the report of the commission will contain, I assume that it will dispose, with some degree of finality, of questions of practicability and probable financial results, affording a basis for substantial legislation.

There is an imperative necessity for legislative dispatch. It is unthinkable that a large part of the present prison population should remain idle. To say nothing of the pecuniary loss to the Government, such a condition would breed disorganization, destruction of prison discipline, and degeneracy, with the innumerable evils accompanying these.

Perhaps the most difficult problem involved in enforcing the law has been how to punish or confine criminals without at the same time punishing their families. Undoubtedly many prisoners are better fed, clothed, and cared for within the walls of these penal institutions than they would be on the outside, but in a very large number of cases the families of these prisoners are left destitute, and in a substantial number of cases their condition is desperate. As a part

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of the plan of prison industries I urge the payment monthly to the families of prisoners of a substantial portion of the amount earned by prison labor, and in cases of single men the retention of some portion of these earnings to be paid over to them on their being released from confinement. Not only would this plan help many innocent and destitute members of the families of these convicts, but would be a great incentive to industry on the part of the prisoners, and encourage a feeling of self-respect and hope which confinement should never be permitted to destroy.

After the passage of the necessary legislation it will require a substantial period of time to install the plants under consideration. In view of the serious problem which I have attempted to present, I most earnestly recommend that legislation be enacted at the earliest time practicable providing for:

The erection of the necessary additional buildings;

The installation of the industries determined upon by Congress;

An appropriation providing the necessary initial working capital so safeguarded that the enterprises may be installed and carried on without financial embarrassment;

The payment to prisoners or their families of a portion of the earnings of these enterprises; and

The payment into the Treasury of the final net earnings.

A number of prisoners are not adapted to industrial pursuits, and farm work is not only attractive to many of them because of their previous environments, but furnishes unusually healthy and fairly remunerative employment. At present 280 acres of land are owned in connection with the Atlanta Penitentiary, 700 at Leavenworth, and 90 at the small penitentiary on McNeil Island. At Atlanta convicts can be worked in the open air almost the entire year, and, in my judgment, the land available for garden, truck, and farming purposes at that point should be greatly extended by purchasing additional acreage. At Leavenworth, while the opportunity for several crops is denied, much grain and hogs and cattle might be produced to advantage, and the acreage there should be more than doubled. The same can be said with equal force in regard to the institution on McNeil Island.

The present acreage at each of the penitentiaries is inadequate for the raising of farm and garden supplies and for the production of meats, milk, etc., sufficient to supply the institutions. In consequence, they are compelled to spend large sums annually for the purchase of what really should be raised by them. With the increase in the cost of foodstuffs, it seems to me desirable that the Government should obtain additional tracts of land with as little delay as possible, in order to reduce the running expenses of these institutions. The additional land need not necessarily be adjacent to the peni-

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tentiary reservation. There is no particular objection to acquiring tracts some miles distant where colonies of picked prisoners, unsuited for shopwork or indoor confinement, could be located and their time devoted to farming, cattle raising, dairying, etc. I ask that an appropriation adequate for this purpose be provided.

3. Pardons.

The report of the attorney in charge of pardons shows a large increase in the number of applications for executive clemency presented and considered during the fiscal year. More applications were received than during any year of the preceding 25. With two exceptions, more cases were acted upon by the President than by any President during any fiscal year of the period stated. The pardon attorney's report shows the number of applications for Executive clemency during the year and the number of applications denied, granted, and pending to be as follows:

Cases pending July 1, 1915	158
Cases filed during the year ending June 30, 1916	848
Cases reopened and reconsidered filed in the current and prior years	41
Total number of cases for consideration	1,047
Applications granted:	
Pardons	37
Pardons after sentence served to restore civil rights	66
Pardons to restore rights of citizenship to deserters from the Army and Navy	13
Sentences commuted	101
Sentences commuted conditionally	6
Fines remitted	9
Fines and costs remitted	6
Penalties remitted	1
Respites granted	30
Total	269
Applications denied	109
Total number of cases considered by the President	378
Cases adversely reported by district attorneys and judges	327
Cases filed without action	109
Cases pending June 30, 1916, including those wherein reports had not been received or which were awaiting further information from other sources	233
Total number of cases disposed of or pending	1,047

4. Paroles.

During the year 298 prisoners were released on parole, as compared with 217 during the year 1915. Of this number, 240 were released from the Federal penitentiaries, as compared with 142 dur-

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ing the fiscal year 1915. The paroles of 21 prisoners were terminated for violation of the conditions of their paroles, as compared with 31 paroles terminated in the prior fiscal year.

Paroled prisoners have earned for themselves during the year $134,782.49 in money, besides, in many instances, receiving board and lodging. These figures do not include the value of the crops, etc., of those who were engaged in farming for themselves.

The administration of the parole law during the year has cost the Government $10,554.67, as compared with $12,364.15 for the preceding year. This includes salaries, traveling expenses, stationery, printing, etc., and is divided as follows:

United States penitentiary, Atlanta, Ga	$3,236.67
United States penitentiary, Leavenworth, Kans	4,017.36
United States penitentiary, McNeil Island, Wash	1,471.32
State institutions	1,829.32
Total	10,554.67

APPROPRIATIONS AND ESTIMATES.

Appropriations made and amounts used thereunder for the Department of Justice and the courts of the United States for the fiscal year 1916 are set forth in detail in Exhibit No. 4. They aggregate $11,698,280.91 and $10,825,533.92, respectively.

The estimates (excluding those specifically for the District of Columbia and Territorial items) of appropriations needed for the service of the fiscal year 1918, beginning July 1, 1917, aggregate $11,508,695.55, an increase of $794,032.88 over the appropriations and of $467,032.88 over the estimates for the fiscal year 1917, commencing July 1, 1916.

The increase above mentioned is largely due to the inclusion of items for the purchase of complete sets of the Federal Reporter and Supreme Court reports, as specifically required by law; to proposed increased activity in construction work at the Federal penitentiaries, and the increased cost of maintenance of a much larger number of Federal prisoners.

THE SUPREME COURT.

The following table shows the result of last year's work of the Supreme Court of the United States so far as the number of cases can show it. There was an increase of 17 in the number of cases docketed on the appellate docket, and an increase of 8 in the number disposed of. The number of cases remaining undisposed of was decreased from 524 to 522.

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	Appellate docket—October term.										
	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915
Cases at close of previous term not disposed of	280	305	343	421	478	586	640	671	604	535	524
Cases docketed at the term	488	476	471	487	503	509	530	509	524	528	545
Total	768	781	814	908	981	1,095	1,170	1,180	1,128	1,063	1,069
Cases disposed of at the term	463	438	393	430	395	455	499	576	593	539	547
Cases remaining undisposed of	305	343	421	478	586	640	671	604	535	524	522

A reference to the foregoing table shows a total of 1,063 cases on the appellate docket during the 1914 term. The number of cases pending was increased during the 1915 term to 1,069, showing an increase of 6 cases on the appellate docket.

At the close of the October term, 1914, there remained undisposed of on the appellate docket 524 cases and on the original docket 12 cases, making a total of 536. The number of cases docketed at the October term, 1915, was 557, of which 545 were on the appellate docket and 12 on the original docket. These, with the 536 cases remaining undisposed of, make the total number of cases pending at the last term 1,093, of which 1,069 were on the appellate and 24 on the original docket. Of this number, 551 were disposed of during the term, 547 of which were on the appellate docket and 4 on the original docket, leaving undisposed of at the close of the October term, 1915, 542 cases, 522 being on the appellate and 20 on the original docket, the lowest number in the last seven years.

The number of appellate cases actually considered by the court was 488, of which 277 were argued orally and 211 submitted on printed arguments. Of the 547 appellate cases disposed of, 187 were affirmed, 89 reversed, 80 dismissed, 60 were settled by the parties and dismissed, in 2 questions certified were answered, 124 were denials of petitions for writs of certiorari under the act of March 3, 1891, and 5 were docketed and dismissed.

The total number of cases on the appellate docket in which the United States was a party or had a substantial interest disposed of at the October term, 1915, was 105. The United States was appellant in 27 of these cases and appellee, etc., in 74, 2 were private cases, and 2 on the original docket.

Of the 27 cases appealed, etc., by the Government, 13 were decided in its favor and 9 adversely, 4 were dismissed by it, and 1 was a denial of a petition for writ of certiorari.

Of the 74 cases in which the Government was appellee, etc., 38 were determined in its favor, 7 adversely, 1 was dismissed without prejudice, 22 were denials of petitions for writs of certiorari, 2 were con-

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fessions of error, 2 dismissed under the tenth rule, and 2 were docketed and dismissed.

Of the foregoing 105 cases, 23 were appeals from the Court of Claims, of which 6 were taken by the Government and 17 by the other side. Of the 6 appeals by the Government, 3 were decided in its favor, 1 against it, and 2 were dismissed by it; while of the 17 cases appealed by the other side, 11 were decided in favor of the United States, 3 against it, in 2 the United States confessed error, and in 1 the decision was modified and affirmed.

Of the 105 cases referred to 28 were criminal, 8 being appealed by the Government under the Criminal Appeals Act. Twenty were appealed, etc., by the defendants. Of the above 8 cases 5 were decided in favor of the Government and 3 adversely, while of the 20 appealed, etc., by the defendants 4 were decided in its favor, 1 was dismissed, and in 15 petitions for writs of certiorari were denied.

Twelve cases were appeals, etc., from the circuit court of appeals, in six of which the Government was appellant and in six appellee. Of the six in which the Government was appellent four were decided in its favor and two adversely, while the six in which it was appellee were decided in its favor. One of the above cases was from the Court of Appeals of the District of Columbia and one from the Supreme Court of the State of New York.

In addition two cases were on certiorari to the circuit court of appeals, in one of which the Government was petitioner and in one respondent, the former being decided in its favor and the latter adversely.

In cases finally determined the United States was respondent in 22 petitions for writs of certiorari and petitioner in 1, all of which were denied.

There were three cases from the Philippine Islands and three from Porto Rico.

The Government filed briefs as *amicus curiæ* in two cases relating to the income tax, both of which were decided in its favor.

Abstracts of Decisions at October Term, 1915.

The following are abstracts of the more important cases not hereinbefore noted, in which the United States was a party or had an interest, decided at the October term, 1915.

United States of America v. New York & Porto Rico Steamship Co. (239 U. S. 88).

This was an action by the Government to recover the increased cost of transportation for coal for the use of the Navy, defendant in error, after agreeing to perform the service, having notified the

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Government to procure the transportation elsewhere. The company, defending, contended that it was not bound, since there was no formal contract "reduced to writing and signed by the contracting parties," as required by section 3744, Revised Statutes, proceeding upon the theory that the statute renders void any agreement not so executed. The contention prevailed in the lower courts, but was overruled by the Supreme Court.

Seven Cases of Eckman's Alterative v. United States of America. Six Cases of Eckman's Alterative v. United States of America (239 U. S. 510).

The case involved the construction and constitutionality of the amendment of 1912 to the section of the pure food and drugs act of 1906 relating to misbranding, the amendatory provision being an enactment to remedy the failure of the original act to reach fraudulent representations regarding the curative or therapeutic effect of drugs shipped in interstate commerce. The amendment was objected to as being inapplicable in a case where, as here, the representations were made in a circular contained in the package or shipment rather than on the label or package itself. It was also assailed as being unconstitutional because (1) a regulation of intrastate commerce, (2) a regulation of matters of opinion, and (3) in violation of the due process clause of the Fifth Amendment and the provision of the Sixth Amendment guaranteeing to the accused the right to be informed of the nature and cause of the accusation. All objections, however, constitutional and otherwise, were overruled.

Frank Crocker, Trustee in Bankruptcy of Postal Service & Lock Co., v. United States (240 U. S. 74).

This was a suit to recover a certain sum for furnishing letter carriers' satchels under a contract with the postal authorities, the contract having been rescinded by the latter upon knowledge that one of the officials who had a voice in awarding it had theretofore entered into secret arrangements with the contractor's agents to share in the profits. Recovery was denied because of the fraud. Recovery on a *quantum valebat* was also denied; this because of absence of evidence as to the value of the satchels.

Union Naval Stores Co. v. United States (240 U. S. 284).

In this case was sustained the right of the Government to recover damages from plaintiff in error for the conversion of turpentine and rosin, taken in their crude state or form from trees on an unperfected homestead entry and subsequently manufactured into the finished products and sold. The Government prevailed upon the ground that the land covered by such an entry remains the property of the United

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States, and that, in any event, the purposes of the homestead act do not include the extraction of turpentine or rosin for sale or profit.

United States v. Hemmer (241 U. S. 379).

Here the court upheld the legality of a conveyance by one Taylor, a Sioux Indian, of a tract of land acquired under statutes permitting Indians under specified conditions to make homestead entries. The ground of alleged illegality was the transfer of the property before the expiration of the inalienability period. There were two acts on the subject: One limiting the period of inalienability to 5 years and one to 25 years. The court held that Taylor came within the former act. Inasmuch as the conveyance was not made until after the expiration of the five-year limitation prescribed by that act it was held not to be affected.

Farnham v. United States (240 U. S. 537).

This was a claim against the United States, based on implied contract, for infringement of patent rights in connection with postage-stamp holders. There being no basis for a finding of implied contract, Farnham's petition was dismissed. The judgment was affirmed, with the modification, however, that it should be without prejudice to the presentation of any claim petitioner might have under the statute (act of June 25, 1910) permitting recovery from the Government of reasonable compensation in cases of infringement.

United States v. Archer (241 U. S. 119).

The case involved the question of the extent of the liability of the Government for lands alleged to have been taken by it in the course of general levee construction along the lower Mississippi River. A dike erected by the Government occupied a small portion of appellants' property, and is alleged to have caused to an extent the overflow of adjacent lands, rendering them less valuable. Appellants recovered damages in the Court of Claims covering the entire tract. The Government, insisting that, if liable at all, its liability was limited to the lands actually taken—occupied by the dike—took an appeal to the Supreme Court. Being unable to decide the question on the findings before it, the court reversed and remanded the case for further findings of fact.

United States v. Ross (239 U. S. 530).

The sole question for decision was whether appellant's service as telegraph and telephone operator in the Hospital Corps of the Army was "extra duty" within the meaning of the statutes and the Army regulations, and therefore entitled him to extra pay. The court

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decided against appellant, the duties being regarded by it as properly incident to the conduct of the hospital service.

Hallowell v. Commons, Acting Indian Agent (239 U. S. 506).

This was a bill to establish the equitable title of appellant to an allotment made to a member of the Omaha Tribe of Indians, the allottee having died while the legal title thereto was still vested in the Government. The suit failed because during its pendency in the district court exclusive jurisdiction to determine the question of heirship in cases of this character was vested by Congress in the Secretary of the Interior, with no exceptions for pending litigation.

Spokane & Inland Empire Railroad Co. v. United States (241 U. S. 344).

The provisions of the safety-appliance act as amended make it unlawful to haul or use in interstate commerce any cars not equipped with automatic couplers, grab irons, etc. "Cars * * * which are used upon street railways" are excepted from these provisions. *Query:* Whether cars used regularly in interstate traffic, although operated partly over and used to some extent upon street railways, come within the exception. *Held*, that they do not, it being the purpose of Congress to enlarge and make more complete the real object of the safety-appliance legislation, namely, the security of the safety of railroad employees.

United States v. Morrison (240 U. S. 192).

Suit by the United States to quiet title to lands situate in the State of Oregon. The act of Congress providing for the admission of Oregon into the Union granted to the State, for school purposes, the usual sections 16 and 36 of every township, or lands equivalent thereto. Prior to the completion and approval of a survey thereof by the Government, the lands were withdrawn from disposition and included in a forest reserve by Executive order. Appellees claimed title under conveyance from the State. It was contended for the Government that because of the withdrawal of the lands prior to approval of survey title thereto never vested in the State. The Supreme Court so held.

Brushaber v. Union Pacific Railroad Co. (240 U. S. 1); Stanton v. Baltic Mining Co. (240 U. S. 103); Tyee Realty Co. v. Anderson, Collector of Internal Revenue (240 U. S. 115); Thorne v. Same (id.); Dodge v. Osborn, Commissioner of Internal Revenue (240 U. S. 118); Dodge v. Brady, Collector of Internal Revenue (240 U. S. 122).

These cases, known as the Income Tax Cases, involved the constitutionality of the principal income-tax provisions of the tariff act of October 3, 1913. The objections on constitutional grounds, particu-

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larly in the Brushaber case, were numerous and varied. Chiefly, it was urged that the act is unconstitutional, first, under the Sixteenth Amendment because inconsistent with and unauthorized by such amendment, and, second, under the "due process" clause of the Fifth Amendment because of retroactive operation, arbitrary classifications, exemptions, discriminations, and inequalities. The provisions were held in all respects constitutional.

Basso v. United States (239 U. S. 602).

The decision in this case was to the effect that a claim for damages alleged to have been sustained as the result of an erroneous conviction of a criminal offense is an action for damages in a case "sounding in tort," and is therefore one not within the jurisdiction of the Court of Claims under the Tucker Act of 1887.

White v. United States; Ford v. United States (239 U. S. 608).

These were claims on the part of naval officers, retired but continued for a time in active service, for increased pay and allowances under the naval appropriation act of 1913, which grants to officers advanced in rank since 1899 and those hereafter so advanced the pay and allowances of the higher rank from the date of the commission. The lower court disallowed the claims. The Supreme Court affirmed, placing its decision upon the ground that the act, properly construed in connection with other statutes relating to duty and pay of naval officers, applies only to officers on the active list. A petition for rehearing was denied.

Willink, Executrix, v. United States (240 U. S. 572).

This was an action by a property owner in the harbor of the Savannah River to recover from the Government as upon implied contract for the taking of property in the improvement of the harbor. *Held*, whatever rights petitioner might have had were subordinate to the public right of navigation, thus barring recovery, following such cases as Scranton *v.* Wheeler (179 U. S. 141) and Greenleaf Lumber Co. *v.* Garrison (237 U. S. 251).

United States v. Andrews (240 U. S. 90).

The decision here was to the effect that an Army officer while on leave, granted by proper authority, is entitled to the pay provided for by section 1265, Revised Statutes, and that under existing law the President is without power to grant leave to such an officer without pay.

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Uterhart, Trustee of Stein, v. United States (240 U. S. 598).

Suit by appellants, trustees under a will, under the refunding act of 1902 for the recovery of succession taxes paid by them under the provisions of the war revenue act of 1898 on account of interests in personal property passing to the residuary legatees. The act of 1902 provides for the refunding of "so much of said tax as may have been collected on contingent beneficial interests which shall not have become vested prior to July 1, 1902." The State courts (New York) construed the will as constituting a trust continuing until after July 1, and the Supreme Court, accepting such construction, held that except as to such amounts as were actually paid to the legatees in the exercise of the discretion of the trustees prior to July 1, the interests were "contingent," and were therefore not taxable.

La Roque v. United States (239 U. S. 62).

This was a bill in equity to cancel a so-called trust patent for an allotment in the White Earth Indian Reservation, Minn., alleged to have been inadvertently and erroneously made to a deceased child of appellant, a Chippewa Indian, under the Nelson Act of 1889, in that the selection of the allotment was not made until after the child's death. The act embodied a scheme or plan for the cession to the Government of certain lands in the reservation and the allotment in severalty to the Indians of others. The Government contended that under the act, properly construed, the right of selection was confined to living Indians only, and did not extend to the heirs. The court so held; also that the judiciary retains power to annul trust patents and that the statute of limitations of March 3, 1891, is not applicable to suits to annul them.

Anderson, Collector of Internal Revenue, v. The Forty-two Broadway Co. (239 U. S. 69).

Respondent, a realty corporation, carried a bonded indebtedness in excess of the amount of its paid-up capital stock, and the question was whether, in determining the net income of the company under the corporation tax act of 1909, the interest payments on the indebtedness constituted (1) "ordinary and necessary expenses * * * in the maintenance and operation of its business and property," and, as such, were to be wholly deducted from gross income (which, in the present instance, would have left no income to be taxed), or (2) "interest * * * on its bonded or other indebtedness," to be deducted only "to an amount * * * not exceeding the paid-up capital stock of the corporation." The latter provision was held to control.

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Ackerlind, Administrator of Lind, v. United States (240 U. S. 531).

The main question for decision here was whether there may be reformation of a contract as against the United States, in a proper case, notwithstanding the provisions of section 3744, Revised Statutes, requiring the contracts mentioned therein to be reduced to writing and signed by the contracting parties. It was held that there may be. The case also decided that one under contract with the Government for the transportation of commodities from points in the United States to Manila Bay is not employed in the service of the Government within the meaning of the Philippine tariff act exempting from payment of tonnage dues "a vessel belonging to or employed in the service of the United States."

Cubbins v. Mississippi River Commission (241 U. S. 351).

The question was one of liability on the part of the Government for damages to complainant's land caused by the overflow of the Mississippi River as a result of general levee construction. The Supreme Court held that overflows under such circumstances are accidental and extraordinary and thus constitute an exception to the established rule that a riparian owner is entitled to an unrestrained flow of the river or stream. Hence there could be no recovery. The general rule and the limitation stated, the court pointed out, prevail under the Roman law, the English law, and the law of the United States.

Maryland Dredging & Contracting Co. v. United States (241 U. S. 184).

This appeal presented the question of appellant's liability for damages for delay in dredging a channel in Pamlico Sound, liquidated damages having been agreed upon at the rate of $20 for each day's delay beyond the contract period. The contract provided that time was an essential feature and that the time allowed was sufficient "unless extraordinary and unforeseeable conditions" should supervene. Appellant was unable to finish the dredging within the period specified because in prosecuting the work it encountered stumps and roots of a submerged forest. It was held that this condition was not one contemplated by the contract as relieving against liability, since "supervene" meant to come into being in the course of the work, as in the case of strikes, epidemics, etc.

Gegiow v. Uhl, Acting Commissioner of Immigration at the Port of New York (239 U. S. 3).

The case decided that the overstocked condition of the labor market at the point of immediate destination of an alien is not sufficient reason to warrant his exclusion under the alien immigration act upon the ground that he is likely to become a public charge.

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Lamar v. United States (two cases—240 U. S. 60; 241 U. S. 103).

Lamar was convicted of having falsely pretended to be an officer of the Government of the United States, namely, a Member of the House of Representatives, in violation of section 32 of the Criminal Code. A writ of error challenging the legality of the conviction was sued out direct from the Supreme Court, but was dismissed on motion of the Government upon the ground that the alleged jurisdictional and constitutional questions relied upon as a basis for the writ were unfounded and without merit (240 U. S. 60, 66). Pending the writ in the Supreme Court Lamar also sued out a writ of error from the Circuit Court of Appeals. The latter, however, regarded the prosecution of both writs at the same time as inconsistent, and, Lamar failing to make an election, dismissed the writ pending before it. The Supreme Court having in the meantime dismissed the writ pending in that court, Lamar made application for reinstatement of his cause in the Circuit Court of Appeals, which was denied. The Supreme Court thereupon issued a writ of certiorari, and because of the exceptional circumstances disposed of the case on its merits. It held that the Circuit Court of Appeals erred in compelling an election, and, in default of withdrawal of the direct appeal, dismissing the writ of error. The principal question decided, however, was that a Member of the House of Representatives is an officer of the United States within the meaning of the statute. The judgment of conviction was in all respects affirmed (241 U. S. 103, 118).

Philadelphia & Reading Railway Co. v. United States of America; Interstate Commerce Commission, and Allentown Portland Cement Co. (240 U. S. 334).

The case involved the legality of an order of the Interstate Commerce Commission, directing appellant and other carriers to institute and maintain a relative adjustment of rates on cement between Evansville (Pa.), a point in the so-called "Lehigh cement district," and Jersey City, the carriers having contemporaneously maintained such an adjustment between the other cement producing points in the Lehigh district and all points east except on traffic to Jersey City for local consumption. The Supreme Court found the order unsupported by the facts and accordingly directed that its enforcement be enjoined.

Lane, Secretary of the Interior, v. United States ex rel. Mickadiet and Tiebault (241 U. S. 201).

The court in this case upheld the power of the Secretary of the Interior to reopen and review a decision of his predecessor declaring certain persons to be the heirs of an allottee of Indian lands. Authority to determine questions of heirship is by statute conferred

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upon the Secretary, and his decision is made final and conclusive. It was held, however, that this finality of decision is addressed to the courts and does not preclude a review by a successor in office while the property is still under administrative control.

United States v. Barnow (239 U. S. 74).

The case involved the construction of section 32 of the Criminal Code, which makes it an offense to falsely assume or pretend to be an officer or employee acting under the authority of the United States. *Query:* Whether the prohibition is sufficiently broad to cover the case of nonexistent officers and employees? *Held*, that it is, the gist of the offense being the wrongful pretense of Federal authority, and not the personation of any particular individual or class of individuals.

United States v. Freeman (239 U. S. 117).

This was an indictment under section 240 of the Criminal Code, which declares it an offense knowingly to "ship or cause to be shipped from one State * * * into any other State * * * or from any foreign country into any State" intoxicating liquor of any kind unless labeled as prescribed by the statute. The question was whether indictment must be in the district court within the State where the shipment was actually made, or whether the district court within the State into which the goods were shipped also had jurisdiction. *Held*, that indictment might be had in the latter under Judicial Code, section 42, the act prohibited by the section being essentially a continuing one, the performance of which is not completed until the shipment reaches its destination.

O'Keefe, Receiver of New Orleans, Texas & Mexico Railroad Co., v. United States and Interstate Commerce Commission (240 U. S. 294).

The case dealt with the question of the validity of an order made by the Interstate Commerce Commission, following the decision of the Supreme Court in the Tap Line Cases (234 U. S. 1), in which it fixed the maximum divisional allowances on joint rates to be paid by trunk lines to certain so-called tap lines in the yellow-pine lumber district in Louisiana. The order was declared to be within the jurisdiction of the commission and in all respects valid.

United States v. Jin Fuey Moy (241 U. S. 394).

Section 8 of the so-called opium registration act of 1914 was under construction. Section 1 of the act provides for the registration and payment of a special tax on the part of those who produce, manufacture, etc., opium, etc. Section 8 makes it unlawful for "any person" who has not registered or paid the special tax to have in

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his possession or control any of the drugs mentioned, and makes such possession or control presumptive evidence of a violation of the statute. *Query:* Whether the words "any person" mean any and every person or only those enumerated in section 1, that is, such as are required to register and pay the tax? The court adopted the latter view.

United States v. Coca Cola Co. of Atlanta (241 U. S. 265).

Libel for condemnation under the food and drugs act of 1906 of a quantity of Coca Cola on the grounds of adulteration and misbranding. The principal questions under the charge of adulteration were, first, whether the caffeine in Coca Cola, although covered by the formula and made a constituent of the article, is an "added" ingredient within the meaning of the act, and, secondly, if so, whether it is a "poisonous or deleterious ingredient which may render the article injurious to health." The Supreme Court held it to be an "added" ingredient. As to whether or not it is poisonous or deleterious this the court regarded a question for the jury to decide, in view of the conflict of competent evidence. With reference to misbranding, the Government contended that Coca Cola contains no coca and very little, if any, cola, and thus constitutes an imitation of these substances; and this notwithstanding the fact that the two names, "coca" and "cola," each descriptive of an article, are united, since it amounts to misbranding if the article sold does not contain any of the articles generally known individually by any of such names. The Supreme Court so held.

Abbott v. Brown, United States Marshal for Southern District of Florida (241 U. S. 606).

The case involved the construction of a district court rule providing for day-to-day adjournments during the temporary absence of the presiding judge and the validity of an order granting a new trial, the order having been made by the judge after adjournment of court, in accordance with the rule, while he was holding sessions at another point in the same district. Interpreting the rule in the light of the law regulating the terms and the business of the court, and construing it liberally, the Supreme Court held its effect to be the keeping open of the court from the beginning of one statutory term to the beginning of the next. The order granting the motion for a new trial was therefore made in term time and hence was valid.

United States of America v. Union Manufacturing Co. (240 U. S. 605).

In this case it was held that the offense of falsely representing the weight of an interstate shipment on the part of a consignee in liquidation of the amount payable for freight at destination, the

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object being to obtain transportation at less than the regular rates, in violation of the act to regulate commerce as amended, is committed "wholly or in part" within the meaning of the act in the district in which the shipment is received, and is therefore properly indictable in such district.

Weber v. Freed, Deputy Collector of United States Customs (239 U. S. 325).

The court here sustained the constitutionality of the act of 1912 prohibiting the importation of pictorial representations of prize fights. Appellant asserted unconstitutionality of the statute upon the ground that Congress exceeded its powers and attempted to exercise police power expressly reserved in the States under the guise of its powers under the commerce clause of the Constitution. The court regarded the contention as devoid of merit.

People of the State of New York on the relation of Kennedy v. Becker, as Sheriff of Erie County (241 U. S. 556).

This case dealt with the right of tribal Seneca Indians, New York, to fish and hunt on certain lands outside the reservation, in accordance with the ancient customs and practices of the tribe, free from any restrictions or limitations by the fish and game laws of the State. The claims were based on the "Big Tree Treaty of 1797," by virtue of which the Indians ceded the lands to one Robert Morris, his heirs and assigns, "excepting and reserving to them * * * and their heirs the privilege of fishing and hunting on the said tract of land hereby intended to be conveyed." The court denied the right, construing the reservation as one in common with the grantees and others to whom the privilege might have been extended, in other words, nonexclusive, subject always to the necessary power of appropriate regulation by the State.

United States v. Nice (241 U. S. 591).

The court decided that an Indian holding an allotment under the provisions of the general allotment act of 1887, as amended, remains, until receipt of his patent in fee, subject to congressional liquor legislation enacted under the commerce clause of the Constitution. Matter of Heff (197 U. S. 488) was overruled after a reexamination of the provisions of the act of 1887 and subsequent enactments reflecting the intent of Congress, namely, that the dissolution of the tribal relation and the termination of guardianship should not take place until the expiration of the period (25 years) during which the land was being held in trust by the Government.

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United States v. Quiver (241 U. S. 602).

The decision was that, unless Congress expressly or clearly otherwise directs, the relations of the Indians among themselves on Indian reservations are to be controlled by the customs and laws of the tribe. There being no statute dealing with adultery, which in terms refers to Indians, such offense remains subject to tribal regulation.

United States v. New South Farm & Home Co. (241 U. S. 64).

In this case was sustained the sufficiency of an indictment charging the use of the mails in a scheme to defraud under section 215 of the Criminal Code, the object being to induce the purchase by the victims of Florida farm lands. Among other things, it was alleged that qualities were assigned to the lands which they did not possess, and the question was whether representations of such a character come within the statute or are at most an exaggeration amounting to "puffing" only. The court was of opinion that in this case they came within the statute.

United States v. Lombardo (241 U. S. 73).

Held, that the word "file" in the provision of the white-slave traffic act requiring to be filed with the Commissioner General of Immigration a statement with reference to the harboring of an alien for the purpose forbidden by the statute means delivery and filing at the office in Washington, D. C., and therefore that the offense of failure to file is not committed in another jurisdiction where the person is harbored or the statement is deposited in the mail.

OTHER COURTS.

1. Court of Claims and Cases in District Courts Involving Claims Against the United States.

Below is a summary of the report of the Assistant Attorney General in charge of the defense of suits in the Court of Claims and suits against the Government prosecuted in the district courts of the United States.

FUNCTION OF THE BUREAU FOR DEFENSE OF SUITS AGAINST THE UNITED STATES.

The duty of this bureau is to defend the Government in suits brought against it, and as a judgment for the plaintiff results in a withdrawal of cash from the United States Treasury, its labors are of great importance to the Government and to the people.

Into this branch of the department come the myriad of suits to which our liberal Government has submitted itself by a long series of acts of Congress, so that to-day any citizen of the United States,

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or any citizen of a foreign country whose Government allows Americans a reciprocal privilege, may sue the Government of the United States upon any debt, claim, or obligation of a contractual nature and also in respect of patent rights, even where the basis of a claim is not contractual but tortious. It is believed that no other nation has gone so far in submitting itself to suit. While the work of this bureau lies mainly in the Court of Claims at Washington, it also reaches into every district court of the United States by virtue of the concurrent jurisdiction of the district courts in suits against the Government involving not more than $10,000.

The policy of the United States in submitting itself to the suit of its citizens has gone far in many directions to relax customary legal procedure in order that poor claimants may be protected in their rights, the Judicial Code even requiring that testimony shall be taken in the county of the residence of the witness, thus bringing the court to the witness rather than the witness to the court. This necessitates sending Government attorneys to all parts of the world.

(A) COURT OF CLAIMS.

SCOPE OF THE JURISDICTION.

In addition to the extensive general jurisdiction of the Court of Claims, constantly growing more extensive as the scope of the Government's contractual activity increases, and to the numerous special jurisdictions conferred by Congress from time to time, this court has an interesting but laborious jurisdiction of historical controversies which require much research and investigation from the attorneys representing the Government.

Summary.

Total amount involved in cases disposed of during the year	$53, 167, 808. 88
Total amount awarded claimants	$1, 285, 516. 13
Total amount claimed in cases filed during the year, exclusive of petitions in which no amount is stated, and including reinstated Indian depredation cases	$10, 422, 471. 93
Contested cases disposed of during the year	564
Number of cases dismissed under authority of decisions in test cases; for nonprosecution, and for other causes	9, 141
Total number of cases disposed of during the year	9, 705
Total number of cases filed during the year	589
Total number of cases pending, including subnumbered cases	6, 016
Approximate amount involved in pending cases	$56, 864, 761. 70

GENERAL JURISDICTION CASES.

General jurisdiction cases are those in which claimants sue directly in the court of Claims under the Judicial Code, and the court's judgments, subject to appeal to the Supreme Court, are final. They find their origin largely in the numerous contracts made by all de-

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partments of the Government for the building of battleships, cruisers, and other vessels; the erection of public buildings; dredging and improvement of rivers and harbors; the building and maintenance of dams, locks, and sea walls; reclamation projects; construction of dry docks; contracts for Army supplies; contracts with mail contractors and railroad companies for carrying mails; claims for the alleged use and infringement of patented devices; and suits wherein it is contended that an implied contract exists.

A large amount of litigation involves the construction of statutes affecting the pay of the Army and Navy and civil employees of the Government; the reimbursement of disbursing officers for United States funds lost without negligence; cases referred to the court by special acts of Congress relating to dealings with the Indians; so-called cotton claims, filed under section 162 of the judiciary act approved March 3, 1911, and numerous claims for property taken under article 5 of the Constitution.

Under contracts of the Navy for the building of battleships, cruisers, etc., the amount claimed in pending suits is approximately $10,000,000; the dry-dock litigation approximates $4,200,000; patent suits involve between fifteen and twenty millions; litigation growing out of the improvement of rivers and harbors aggregates several million dollars. Claims for additional compensation for carrying the mails, including parcel-post matter, involve many millions of dollars. There are approximately 1,000 pending suits to recover the proceeds of cotton taken and sold by the United States authorities after June 1, 1865, amounting to $4,700,000, and being theoretically in the United States Treasury.

There are now pending in the Court of Claims 1,618 general jurisdiction cases, exclusive of a large number of petitions subnumbered under general docket numbers.

Since the last report petitions have been filed in 525 cases, the aggregate amount claimed being, approximately, $10,249,915.92.

During the year the court passed upon 2,098 cases, involving, as far as can be ascertained from the petitions, $12,755,809.98. In 2,039 of these, claiming $8,234,230.37, judgments were in favor of the United States. In 59 cases, claiming $4,521,579.61, there were awards for claimants in the sum of $1,206,485.77. Of the cases decided in favor of the Government there were 1,940 dismissed for nonprosecution, wherein petitions which state amounts aggregate $4,253,764.09.

Cases disposed of during the year	2,098
Amount claimed in cases of disposed of	$12,755,809.98
Amount recovered by claimants	$1,206,485.77
Cases filed during the year	525
Approximate amount claimed in them	$10,249,915.92
Number of cases now pending, exclusive of subnumbered petitions	1,618

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DEPARTMENTAL CASES.

Departmental cases involve questions referred by the heads of the various executive departments under authority of section 148 of the Judicial Code, wherein they desire opinions of the court for their information and guidance.

Under this jurisdiction 1 case was decided during the year, in which the amount claimed was $14,271.86. Findings favorable to claimant were filed in the sum of $9,271.86. There are now pending 30 such cases.

CONGRESSIONAL CASES.

Congressional cases are before the court by reference of Congress under the acts of March 3, 1883, and March 3, 1887, commonly known as the Bowman and Tucker Acts, and authority of section 151 of the Judicial Code of March 3, 1911. In these cases the court does not render judgment, but makes findings and reports the same to Congress. In addition to the large number of so-called Civil War claims, many others have been referred for findings where the claimants could not bring action by suing directly in the court.

Since the last report there have been transmitted to the court 18 congressional cases, in which no amounts are stated.

During the year the court disposed of 7,504 cases, involving a total of $40,113,523.29, findings in which have been or will be reported to Congress.

There are now pending 4,152 congressional cases, embracing 3,988 subnumbered claims.

INDIAN DEPREDATION CASES.

Indian depredation cases are those brought under the jurisdictional act of March 3, 1891 (26 Stat., 851), in which claims are made for property of citizens of the United States taken or destroyed by Indians belonging to any band, tribe, or nation in amity with the United States. The act of January 11, 1915 (38 Stat., 791), amended the act of March 3, 1891, and enlarged the jurisdiction of the Court of Claims so as to include also "claims for property of *inhabitants* of the United States, taken or destroyed by Indians belonging to any tribe in amity with the United States." Prior to this amendatory act the jurisdiction of the court was limited to "claims for property of *citizens* of the United States." The act also provides for the reinstatement of "all cases * * * which have been dismissed by the court for want of proof of the citizenship of the claimant." Under the amendment to the original act 46 cases were reinstated during the past year, making a total reinstated to date of 261 cases. Testimony on behalf of claimants remains to be taken in approximately 150

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pending cases, and every effort is being made to complete this phase of the work. In an endeavor to speedily terminate the Indian depredation branch of the court's jurisdiction, a motion to dismiss for nonprosecution has been filed, which includes every case now pending and not ready for trial on behalf of the claimants.

During the year there have been 102 cases disposed of, aggregating in amount claimed $284,203.75. In 77 cases judgments were for claimants, and 25 were decided in favor of the United States.

Cases disposed of during the year	102
Amount claimed in cases disposed of	$284,203.75
Amount recovered by claimants	$69,758.50
Cases reinstated during the year	46
Amount claimed in them	$172,556.01
Cases now pending	216
Amount claimed in pending cases	$768,335.21

(B) CASES IN DISTRICT COURTS INVOLVING CLAIMS.

This bureau is charged with the general supervision of the defense of suits brought against the Government in the various district courts of the United States under the act entitled, "An act to provide for the bringing of suits against the Government of the United States" (1 Supp. R. S., 559), as amended by the Judicial Code of March 3, 1911 (38 Stats., 1087).

During the year 8 suits were brought in the district courts throughout the United States, involving in the aggregate the sum of $35,932.65.

Under this jurisdiction 7 cases went to judgment during the fiscal year, in 5 of which the decisions were favorable to the petitioners, and in 2 cases the court found for the Government on counterclaims.

In satisfaction of 9 judgments rendered in prior years, Congress at its last session appropriated the sum of $9,464.72. Five cases were dismissed, 2 stand on error to the Supreme Court, and 1 on appeal to the circuit court of appeals.

Since the jurisdiction was created 1,668 suits have been brought against the Government, of which 132 are now pending in the district courts.

(C) APPEALS TO THE SUPREME COURT FROM THE COURT OF CLAIMS.

During the year 25 cases appealed from the Court of Claims were presented to the Supreme Court, 7 of which were appeals by the United States and 18 by claimants. Of this number 21 were briefed and argued. Decisions in 14 cases were in favor of the United States, 3 against it; 1 case was lost in part, and 2 remain to be decided. One case was remanded to the lower court for further findings; in 2 the

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Government confessed error before the filing of briefs, and 2 cases appealed by the United States were dismissed on its motion. In 9 cases appeals were taken from decisions of the Court of Claims to the Supreme Court during the year, 7 of which were appeals by claimants and 2 by the United States. There are now pending in the Supreme Court 15 appeals from the Court of Claims.

2. Customs Cases.

The report of the Assistant Attorney General in charge of customs may be summarized as follows:

The following table shows numerically the volume of litigation during the year in the Court of Customs Appeals, as compared with others, since the establishment of that court:

	1910	1911	1912	1913	1914	1915	1916
Cases decided on argument:							
Won by the United States	106	133	132	116	99	82	75
Won by the importers	74	89	83	60	70	76	42
Total	180	222	215	176	169	158	117
Issues involved in the above cases decided on argument:							
Won by the United States	68	113	126	110	97	79	70
Won by the importers	46	75	71	55	65	56	42
Total	114	188	197	165	162	135	112
Percentage won by the United States	59.6	60.1	64.0	66.7	59.9	58.5	62.5
Cases decided without argument:							
Won by the United States	112	212	244	41	36	18	22
Won by the importers	158	28	49	30	44	20	8
Total	270	249	293	71	80	38	30

The above table presents the appellate work of the division. All appeals are from decisions of the Board of General Appraisers, which is the tribunal of first instance. A summary of the work there is appended, together with statistics of previous years since 1910.

	1910	1911	1912	1913	1914	1915	1916
Protests:							
Pending at beginning of year	95,220	116,087	170,855	146,153	105,731	90,915	76,007
Received	65,951	121,187	96,099	58,061	42,125	32,546	18,115
Decided	45,085	66,419	120,801	98,483	56,941	47,454	19,650
Pending at end of year	116,086	170,855	146,153	105,731	90,915	76,007	74,472
Suspended at end of year	33,490	51,524	9,256	26,334	28,500	50,008	59,579
Reappraisements (before single general appraisers):							
Pending at beginning of year	425	621	590	906	915	999	2,451
Received	3,481	4,506	5,796	4,869	4,686	6,626	5,096
Decided	3,285	4,537	5,480	4,860	4,602	5,174	5,719
Pending at end of year	621	590	906	915	999	2,451	1,828
Reappraisements (on appeal to boards):							
Pending at beginning of year	105	137	194	234	384	273	647
Received	1,020	1,525	1,710	1,691	1,530	1,782	2,568
Decided	988	1,468	1,670	1,541	1,641	1,408	2,316
Pending at end of year	137	194	234	384	273	647	899

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SUMMARY OF BUSINESS, REVENUES, AND EXPENDITURES, DEPARTMENT OF JUSTICE AND COURTS OF THE UNITED STATES.

1. Business.

(A) SUPREME COURT OF THE UNITED STATES.

Number of cases and other proceedings docketed during the year	545
Number of cases and other proceedings disposed of during the year	547
Number of cases and other proceedings pending at the close of the year	522

(B) UNITED STATES COURT OF CUSTOMS APPEALS.

Number of cases and other proceedings docketed during the year	161
Number of cases and other proceedings disposed of during the year	115
Number of cases and other proceedings pending at the close of the year	50

(C) COURT OF CLAIMS.

Number of cases and other proceedings docketed during the year	589
Number of cases and other proceedings disposed of during the year	9,705
Number of cases and other proceedings pending at the close of the year	6,016

(D) COURTS OF APPEALS

Number of cases and other proceedings docketed during the year	1,740
Number of cases and other proceedings disposed of during the year	1,658
Number of cases and other proceedings pending at the close of the year	1,075

(E) DISTRICT COURTS.

Number of cases and other proceedings commenced during the year:	
Civil cases to which the United States was a party	3,500
Criminal prosecutions by the United States	20,243
Admiralty cases	2,313
Other suits to which the United States was not a party	11,539
Bankruptcy proceedings	27,368
Total	64,963
Number of cases and other proceedings terminated during the year:	
Civil cases to which the United States was a party	10,739
Criminal prosecutions by the United States	20,432
Admiralty cases	1,832
Other suits to which the United States was not a party	17,327
Bankruptcy proceedings	25,172
Total	75,502
Number of cases and other proceedings pending at the close of the year:	
Civil cases to which the United States was a party	19,123
Criminal prosecutions by the United States	10,370
Admiralty cases	7,300
Other suits to which the United States was not a party	46,939
Bankruptcy proceedings	45,689
Total	129,421

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2. Revenues.

Collections, judgments, fines, etc. (Exhibit 2):	
In civil matters and cases	$1,112,610.00
In criminal prosecutions	443,284.76
Earnings from individuals and corporations by United States marshals (Exhibit 6)	112,270.18
Excess of emoluments paid into the Treasury during the year by clerks of courts (Treasury report)	97,244.45
Unclaimed moneys from court registries (Treasury report)	14,068.50
Proceeds of sale of Government property and other miscellaneous items (Treasury report)	4,822.46
Total	1,784,300.35

3. Expenditures.

(A) DEPARTMENTAL.

General salaries and contingent funds, including rent and public printing	$635,457.90
District attorneys, regular assistants and special assistants	1,111,823.30
Witnesses	1,019,613.06
Special legal branches of departmental work	388,301.44
Investigation	519,851.66
Maintenance of prisoners, etc	1,446,034.07
Public works, i. e., construction of penal institutions	257,364.18
Miscellaneous expenses	451,805.14
Total	5,830,250.81

(B) UNITED STATES COURTS.

Supreme Court of the United States	$164,536.78
United States Court of Customs Appeals	67,097.58
Court of Claims	94,569.07
District of Columbia courts	189,061.17
Circuit courts of appeals, district and Territorial courts	4,480,018.51
Total	4,995,283.11
Grand total	10,825,533.92

T. W. Gregory,
Attorney General.

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REPORT OF THE POSTMASTER GENERAL.

NOVEMBER 15, 1916.

To the PRESIDENT:

The Postmaster General has the honor to present his annual report for the fiscal year ended June 30, 1916.

POSTAL FINANCES.

In the last annual report of the Postmaster General it was shown that the postal revenues were immediately and seriously affected by the outbreak of hostilities in Europe. Monthly statements received from the 50 largest post offices beginning with August, 1914, showed a steady decline in revenues until the close of the calendar year, after which there was a slow but gradual improvement that continued until the close of the fiscal year. This betterment was steadily maintained during the 12 months ended June 30, 1916, and the postal revenues reflecting the general business prosperity throughout the country. Statements for the months of July and August, in which increases of 11.70 per cent and 9.98 per cent, respectively, are shown, indicate the continuance of the improved conditions reported to the department by the 50 largest offices during the fiscal year just closed.

The receipts for the fiscal year ended June 30, 1916, were $312,057,688.83, the increase in revenues over the preceding year being $24,809,523.56, or 8.63 per cent, compared with a decrease of $686,400.40 in 1915 under 1914, the rate of decrease in that year being 0.23 per cent.

The expenditures for the fiscal year, as reported by the Auditor for the Post Office Department, were $306,204,033.14, an increase over the preceding year of $7,658,006.72, or 2.56 per cent.

This exceptionally low rate of increase in expenditure is largely due to the efforts of postmasters. The Auditor for the Post Office Department, an official of the Treasury Department, in discussing the promptitude and accuracy with which postmasters have rendered their postal accounts, states that "at no time in the past 25 years, during which I have been connected with the auditing department, has the standard of efficiency among postmasters been so high as at present." The loyal and effective service of supervisory officials and the clerical employees of the service generally has also contributed to the high standard of efficiency which has been steadily maintained throughout the year.

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Although the average increase in expenditures in the last three fiscal years was $16,673,525.44, due to enlarged postal facilities afforded the public, the rapid growth of the domestic parcel post, and salary increases required by legislation, the service was successfully carried on and its cost defrayed from the current postal revenues.

As stated in the last annual report, surpluses of $3,800,000 for the year 1913 and $3,500,000 for the year 1914 were paid into the general fund of the Treasury. The fiscal year 1915, due to adverse conditions over which the department had no control, showed a deficit of $11,333,308.97; but the audited revenues for the year just closed show a surplus of $5,829,236.07. Although the audited revenues do not completely represent the financial results of the year, for the reason that many obligations of the Postal Service, representing railroad transportation, payments of contractors for the carrying of mail, and purchases made near the close of the year must be paid after the close of the year, the actual surplus, as nearly as can be determined by careful consideration of the outstanding obligations, is $5,216,243.61, of which amount the sum of $5,200,000 has already been turned into the Treasury. The total of payments to the Treasury during the past four years is therefore $12,500,000.

That the Postal Service is now self-sustaining is evidenced by the fact that for three out of the four years of the present administration audited surpluses aggregating $14,716,350.03 have been shown. Deducting the audited deficiency in 1915 of $11,333,308.97, the net surplus for the four-year period is $3,383,041.06, and but for the business depression occasioned by the European war the department would have undoubtedly secured a surplus of not less than $18,000,000. This is in marked contrast with the deficits for the eight years of the two preceding administrations, which drained the Treasury of $48,739,639.34 and $24,927,657.40, respectively.

Whereas the department is no longer a tax on the general revenue it is desired to again emphasize its position that it should not be permitted to become a revenue producer for the Government. It should become its fixed policy that all surplus postal revenues should be used for the enlargement of the service, the increase of postal efficiency, and, when justified, to a reduction of rates of postage. A more detailed discussion of the postal finances for the fiscal year will be found in the report of the Third Assistant Postmaster General.

GENERAL POLICY.

Improvement of the Postal Service has been the constant aim of the present administration. To this end, the introduction of economies of operation and the adoption and vigorous enforcement of business principles have been necessary. Equitable distribution of postal facilities throughout the Nation at reasonable

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cost is the imperative need of the social, business, and economic life of the people; and may only be obtained by the elimination of needless expense and by removal of the inequalities, duplications, and disadvantageous or obsolete methods that have been engrafted onto the Postal Service in the past.

It is a matter of regret that during the past year essential corrective steps have encountered opposition which has been thoroughly vicious in method and purpose and has tended to hamper the expansion of the service along lines fair and just to the public at large. To illustrate, certain railroads conducted a nation-wide propaganda to secure a wholly unwarranted increase in their compensation for carrying the mails. It was sought to continue an indefensible, unsuccessful, and uneconomical plan for fixing compensation for mail pay. They joined in a persistent campaign to prevent the enactment of the equitable and just method of fixing the pay for carriage of mail upon railways worked out after years of study and investigation by postal experts and other specialists upon the subject. The Postmaster General is glad to be able to say that this effort to saddle the department for another indefinite period with the old "weight basis" of determining mail pay, with extra allowances carrying unreasonable increase of pay, was finally rejected by Congress and the adjudication of the matter left to the Interstate Commerce Commission, as suggested by the department.

Again, the interests enjoying practically a monopoly of the pneumatic tubes used in the mail service endeavored during the last session of Congress to secure by legislation and *without readvertisement by the department for competitive bids* an extension of their contracts which aggregate nearly $1,000,000 annually and which expired July 1 last. This indefensible and unscrupulous effort was made notwithstanding the changed conditions that now enter into the question of carrying the mails in large cities and in the face of the law which requires that all postal contracts be awarded in open competition.

The questions of mail pay and of pneumatic tubes are treated more at length elsewhere in this report. They are mentioned here only in their bearing upon the larger matter of securing conditions which will permit the working out of postal policies that look first to the necessities of the public and second to the conduct of the Postal Service along lines of maximum efficiency and economy.

The department, too, opposed, though unsuccessfully, efforts on the part of agents of the rural carriers to secure an unwarranted gratuity of nearly $3,000,000 to be taken from the postal revenues and of others speaking for the railway mail clerks to bring about administrative changes of conditions in their branch of the service which would impose other large and unjust charges upon the revenues of the service as a whole.

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The department feels constrained from a sense of public duty to state that its efforts to properly administer the Postal Service have been made extremely difficult owing to the activities of certain organizations of postal employees, which are becoming more pronounced every year. As stated, they have been most persistent in their efforts to secure legislation favorable to themselves without regard to the interests of the service. Information now reaches the department that these organizations are becoming active politically and are attempting to control the nomination and election of candidates to public office as well as to influence administrative officers in the matter of promotions, reductions, and removals in violation of the spirit of the civil-service law and the merit system. Unless such activities cease they will nullify the effect of the merit system and ultimately result in either the withdrawal of these positions from the classified service or the repeal of section 6 of the act of August 24, 1912.

The department regrets the necessity of directing attention to these conditions, but deems it a duty to point out this danger.

The menace to the public's just claims upon the postal establishment has not lain wholly in the activities of these or other single sets of interests; but also and in larger degree in what appears to be a combination of these interests. Much time of department officials which otherwise would have been devoted to increasing postal efficiency necessarily has been required in an effort to prevent these agencies from accomplishing their purpose.

Government officials should safeguard the interests of the Government with the same zeal and conduct its affairs with the same conscientious regard for businesslike administration that they would observe in the management of their own private affairs.

EXTENSIONS.

The reports of the four Assistant Postmasters General, to which attention is invited, will show in detail all extensions and enlargements of the service which have been made during the last fiscal year.

COMPENSATION OF EMPLOYEES.

The system of efficiency ratings established for the department by Executive order under the act of August 23, 1912, has resulted in a more equitable distribution of the salaries appropriated by Congress and an increase of $30 in the average annual pay of the employees. Under this system standard rates of pay are fixed for every class of duties, and salaries are being adjusted to these standards as rapidly as practicable. In all cases promotions and demotions are being made strictly on merit. It has been the earnest effort of the department to fix the standard rates of pay for the different classes

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of work at from 15 to 30 per cent above the average rates paid for similar services by the leading commercial institutions of the country. The same rule has been followed throughout the Postal Service in fixing salaries that are not fixed by law. Wherever an employee or a group of employees is found to be receiving salaries below the standard, the department will make an effort to secure appropriate increases. It is the department's desire to maintain not only a living wage for all its employees, but by the adoption of every safety appliance possible to establish sanitary and comfortable working conditions for both departmental and Postal Service employees and in no case to require of any postal employee more than eight hours' work in any one day.

STATISTICAL DATA AND INFORMATION.

The creation under the Postmaster General of a Division of Statistics and Postal Information is recommended. This division is needed in order to bring about for the use of the department and Congress a proper classification and comparative correlation of data upon the operation of the several branches of the service now collected through the several bureaus of the department. The division should also be authorized to devise methods of obtaining and to secure in a scientific and accurate way such additional data on the operations of the service as may be deemed necessary for the proper guidance of the department and Congress and for the information of the public.

It is recommended that an appropriation be made for a chief of the Division of Statistics and Postal Information at a compensation of $3,600 a year; for an assistant chief of the division, at $1,800 a year; and of $10,000 for the employment of experts during the first year's operation of the new division, whose advice and aid will be used in adopting methods for the collection, classification, and correlation of said needful data. At the outset it is believed that the clerical staff necessary for the work of the division can be drawn from the other divisions of the department. A draft of legislation for the creation of this division appears upon page 62 of this report.

FOREIGN MAIL SERVICE.

The betterment of our foreign mail service has received special attention. Conventions were concluded with British Guiana and New Zealand for reciprocal domestic letter rates between those colonies and the United States, which became effective January 1, 1916, and October 14, 1916, respectively. Therefore reciprocal letter rates now apply to letters exchanged between the United States and Canada, Cuba, Mexico, the Republic of Panama, the Bahamas, Bar-

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bados, British Guiana, British Honduras, Dutch West Indies, Leeward Islands, New Zealand, and Newfoundland. The department has continued its efforts to bring about a reciprocal domestic letter postage rate with all countries of the Western Hemisphere. Failure to accomplish this result is due to the effect of the European war on the finances of those countries. The department purposes to continue its efforts in this direction until all countries in the Western Hemisphere have the same rate of postage now accorded by the United States to Canada, Cuba, Mexico, and the other countries above mentioned.

For many years the mails from the United States for Central and South America dispatched via the Isthmus of Panama have been sent in care of the British packet agent at Panama, by whom they were reforwarded to destination pursuant to the provisions of the Universal Postal Convention. In consequence of changes in conditions brought about by the completion of the Panama Canal and the establishment of an effective United States Postal Service in the Canal Zone, the handling of all our mails at the Isthmus by our own agencies became possible, and arrangement was made, effective November 1, 1916, whereby all mails dispatched from the United States to and via the Isthmus of Panama will be consigned to the United States postal authorities on the Canal Zone, who will be charged with the duty of caring for the mails and sending them on to destination by the most expeditious routes and steamers available. The new arrangement will assure greater care and expedition in the handling and dispatch of our mails for the west coast of Central and South America, the volume of which is rapidly and continuously increasing.

During the year International Parcel Post was extended, service having been inaugurated with Argentina on the 15th of October, 1915, and a convention concluded with China, which became effective August 1, 1916. Negotiations are being continued for the conclusion of conventions with other countries, with prospects of favorable results eventually, although they are necessarily retarded by the unsettled conditions consequent to the European war.

During the year it was necessary to suspend the parcel-post service between the United States and Austria, Hungary, Germany, and the Netherlands on account of the lack of necessary transportation facilities, due to the war. At the end of the fiscal year, therefore, the service was not in operation to those countries. Notwithstanding the mentioned interruptions to the service, the weight of the parcel-post mails dispatched from the United States to foreign countries during the fiscal year 1916 shows an increase of 87.25 per cent over the weight of the parcel-post mails dispatched during the fiscal year 1915, which is gratifying evidence of the utility of the

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service and the appreciation of it by the people. The increase in the weight of the parcel-post mails dispatched to Central and South America was 101.43 per cent. The weight of the parcel-post mails received from foreign countries during the year shows an increase of 37.86 per cent over those received during the year 1915. The United States now has parcel-post conventions with 53 countries and colonies.

Contract ocean mail service under the provisions of the ocean mail act of 1891 was in operation on five routes, namely: From New York to Puerto Cabello, Venezuela; from New York to Maracaibo, Venezuela; from New York to Vera Cruz, Mexico; from New York to Southampton or Liverpool, England; and from San Francisco to Sydney, Australia.

All mails not carried under the ocean-mail act of 1891 on the mileage basis are carried by noncontract vessels on the weight basis. The total cost of the contract service for the fiscal year 1916 was $1,090,918. Mention was made in the report for last year that the fiscal year 1914 was the first year in the more than 20 years of service under the act of 1891 that the contract steamers were used to such an extent that the conveyance of the mails dispatched by them would have cost more at the pound rates allowed to noncontract steamers than the pay received by the contract steamers at the mileage rates. During the fiscal year 1916 the net cost of the contract service was $327,308.89 less than the American steamers performing it would have received for the same service on the weight basis, or $330,574.02 more than foreign steamers would have received for the same service on the weight basis. In considering this subject it should be borne in mind further that for the 21 years, 1892 to 1912, inclusive, the cost of the contract service was $8,056,115.18 more, and that for the four fiscal years ended June 30, 1916, it was $461,114.83 less than it would have been if the steamers performing the service had not been under contract, but had been paid on the weight basis at the rates allowed to noncontract steamers. The economy effected by utilizing the contract steamers to the fullest extent possible is self-evident, as all mail not dispatched by the contract steamers must be dispatched by the noncontract steamers and its conveyance paid for on the weight basis, while the increased weight of the mail dispatched by the contract steamers does not increase their pay, which is on a mileage basis.

Through advances in the science of shipbuilding which have taken place in recent years, a notable increase in the speed of carriage of trans-Atlantic mails is practicable. Larger and more powerful steamers can now be built which should carry the mail at a speed of 28 knots an hour, as compared with the 20 knots at present secured by contract. Such development would give this country mail steam-

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ers superior to any now in existence, and their advent under the American flag would provide an important national asset. It is recommended that this more efficient service be secured to the Government if it can be done upon fair terms.

DOMESTIC PARCEL POST.

In growth and development of parcel-post business, the year to which this report relates was consistent with preceding years of this administration. The policy adopted at the outset of facilitating this service in every proper way in the interest of the people has been carried out.

Wide publicity has been given to the parcel post generally, but particular stress has been laid upon the exchange of commodities by mail between producers and consumers. Steps taken by the department to facilitate this kind of traffic have been fully discussed in previous reports. Postmasters, under instruction of the department and as a result of their experience during the last three years, have become more proficient in encouraging this business. This traffic, which has been especially stimulated on grounds of public policy, has responded satisfactorily to the department's efforts and may be expected to continue to grow in proportion to the spread of understanding and information regarding the means offered by the Postal Service for direct dealing between consumers and producers of food products. American inventive genius has proved to be an invaluable aid in the farm-to-table movement and has provided suitable containers which are indispensable to the satisfactory use of the mails for the shipment of food and other perishable products.

Undoubtedly the parcel post offers a practical means of reducing the cost of living in our great cities. Its use as a means of direct exchange between the producer on the farm and the consumer in the city has already tended to bring about this desirable result. However, the present conditions in which certain of the rural carriers have endeavored to discourage the shipment of parcels containing farm produce has operated to the serious disadvantage of the public. Many carriers using motorcycles or horse-drawn vehicles do not want to get new business which would require the use of a larger vehicle. It is one of the circumstances attending the present method of adjusting the compensation of rural carriers which causes them to discourage rather than encourage a proper development of parcel post along their routes. This condition works a hardship not only upon the producer but also upon the teeming populations of our congested cities, and stands in immediate need of a drastic remedy.

The inability of the department to consider partial damage to insured parcels as a basis for indemnity has been an administrative embarrassment. This has been overcome by a provision contained

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in the appropriation act for the fiscal year 1917, authorizing, as recommended by the department, the necessary appropriation for the indemnification of senders of insured parcels in cases of partial as well as total loss.

The original parcel-post law embodied the essentials of authority necessary to the commencement of a parcel-post service. This law, however, prescribed rates of postage and other conditions of mailability which restricted unduly the movement of the traffic for the accommodation of which the service was authorized, and had they not been changed the effect would have been to discourage the use of the service as a means of exchanging commodities. In recognition of these facts, the department undertook cautiously but speedily to remove all restrictions which were manifestly unnecessary and to adjust the rates of postage more nearly in approximation to the cost of performing the service. The action of the department in this direction reflects the trend and tendencies of the administration of the service and the wisdom of each change has been justified by the increase in business.

The mandatory use of distinctive stamps, prescribed by the parcel-post law, was discontinued for the reason that it served no useful purpose which could not better be served by a means which would not involve any inconvenience to the public. This change simplified and facilitated the patronage of the Postal Service by recognizing a single variety of stamps as valid for all purposes.

The original regulations regarding the insurance of packages against loss prescribed that upon payment of a fee of 10 cents the parcel would be insured in amount equivalent to its actual value, but not to exceed $50. Experience proved that this system was not sufficiently elastic to meet the needs of the public and that provision should be made for indemnification of senders for injury to insured parcels. The regulations have been amended so as to provide for the insurance of a parcel against loss or injury in amount equivalent to its actual value, not exceeding $5, on payment of a fee of 3 cents; not exceeding $25 on payment of a fee of 5 cents; not exceeding $50 on payment of a fee of 10 cents; and not exceeding $100 on payment of a fee of 25 cents.

Six months after the commencement of the Parcel Post Service the department established the collect-on-delivery feature, which enables the sender of a mailable parcel on which postage is fully prepaid to have the price of the article and the charges thereon collected from the addressee. A fee of 10 cents is charged for this service. The department does not undertake to collect any amount in excess of $100 on any parcel. Collect-on-delivery parcels are insured without additional charge in amount equivalent to their actual value, not exceeding $50.

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The first reduction in rates of postage was made on August 15, 1913, and affected the first and second zones. On the same date the weight limit for these zones was increased from 11 to 20 pounds.

On July 1, 1914, the weight limit for the first and second zones was increased from 20 to 50 pounds and the weight limit for all other zones was increased from 11 to 20 pounds. On the same date the rate of postage was reduced in the third, fourth, fifth, and sixth zones. On March 16, 1914, books were embraced in the parcel-post classification. An amendment to the original law also authorized the inclusion of seeds, bulbs, etc., in the parcel-post classification.

The size limit prescribed by the original law was 72 inches in length and girth combined. It was found that many standard commercial containers slightly exceeded this limit and were therefore excluded from shipment by parcel post, although the weight limit would easily be met. To accommodate this traffic the size limit was increased to 84 inches in length and girth combined.

These changes are of special interest to the public and are for the purpose of inducing the movement of potential traffic. They have been accompanied by adjustments and improvement in the physical aspect of the postal organization, and at the same time methods and practices of rendering service have been amplified and improved, to the end that the traffic which is induced by established rates and other conditions of mailability shall be expeditiously and satisfactorily handled and shall be augmented as a result of the popular appreciation of the service rendered.

Carefully compiled statistics have formed the principal basis for the department's action in reducing rates and enlarging limits of weight and size. The act of July 28, 1916, which authorizes the new method of railway mail pay, referred to elsewhere in this report, contains a provision under which the department may arrange for the transportation of parcel-post mail at rates of compensation to the railroad companies not exceeding the rates paid for the transportation of express matter. Carload and less than carload rates are, by the same act, made available to the department for the transportation of fourth-class matter. The administration of this act may make it feasible to accord to the people more liberal rates and regulations for this class of mail. Whenever the department shall secure adequate and reliable data relating to the condition which will be created by putting into effect the bases of pay authorized by law for parcel post, transportation rates will be reduced to whatever extent is consistent with the policy of the department to maintain the service on a self-supporting basis, and the limit of weight for parcel post will be increased and adjusted in accordance with the needs and demand of the public. It is proposed to take whatever action mature deliberation may justify in the interest of all the

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people, so that parcel post may establish the maximum aid toward reducing the cost of living and augmenting the prosperity of the Nation.

Efforts have been made at various times since the establishment of the parcel post to restrict the administrative authority given the Postmaster General in the original parcel-post act, whereby, with the consent of the Interstate Commerce Commission, he could make such changes in the rates of postage, limit of size, weight, etc., as would promote the service in the interest of the public. During the last session of Congress an effort was made to restrict by law the limit of weight of parcels to 50 pounds, but it failed of enactment. However, an act was passed which provides that before any changes proposed by the Postmaster General are put into effect such changes shall be approved by the Interstate Commerce Commission after thorough and independent consideration by that body in such manner as it may determine. This requirement will greatly retard the improvement in the service, as well as interfere with its businesslike administration, and it is believed, therefore, that this legislation should be repealed.

COMPENSATION TO RAILROADS FOR CARRYING THE MAILS.

For many years the Post Office Department has brought to the attention of Congress the necessity for a change in the basis of compensating railroads for carrying the mails, asserting that the then existing basis of pay according to weight was inequitable and unjust, resulting in cases of both overpayment and underpayment to certain railroads, and which, in the aggregate, resulted in the payment by the Government of an excessive sum for this service. This contention of the department was stubbornly opposed by certain railroads which believed that the proposed change would result in the reduction of the compensation allowed them under existing law for this service. Time and again the efforts of the department to bring about an equitable and just solution of this vexatious problem were defeated, frequently those acting in the interest of the railroads combining with others who were seeking to selfishly exploit the postal revenues to the great injury of the service. However, on July 28, 1916, Congress enacted legislation which finally settled this controversy, and it is a source of great pleasure to report that it was in a way thoroughly satisfactory to the department.

In carrying into effect the provisions of the law the department has promulgated orders by the terms of which all of the Railway Mail Service which was deemed practicable and desirable was placed on the space basis, effective November 1, 1916. The rates provided are the maximum authorized by the act. However, these rates now in operation are excessive, but under the law the department will

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on January 1 next file with the Interstate Commerce Commission its comprehensive plan of service, which will embody a recommendation looking to a reduction of the rates but at the same time assure to the railroads a just and adequate compensation for the service performed.

After the promulgation of the orders and before they went into effect, the department called into consultation the duly accredited representatives of the several railroad companies with a view to reaching the best possible understanding and perfecting all of the necessary arrangements between the Government and the railroads for carrying out the provisions of the law.

The aim of the department in the administration of this law is to secure equitable and fair rates alike to the department and the railroads and to bring to the highest state of efficiency the Railway Mail Service, upon which the effectiveness of the postal establishment largely depends.

ADDITIONAL COMPENSATION FOR MAIL TRANSPORTATION ON ACCOUNT OF PARCEL POST.

The payment of the additional compensation to railroad companies authorized by Congress on account of the increased volume of the mails to be transported, resulting from the department's orders raising the limits of size and weight for parcel-post mail, was delayed owing to the failure of the postal appropriation act for the fiscal year 1916. Under the provisions included in the postal appropriation act for the fiscal year 1917 for adjusting these claims of the railroads the amounts due, which were fully adequate for the service rendered, have been finally determined and paid. It is a source of satisfaction to the department that this matter has been finally adjusted, but it is only fair to state that the delay of this settlement was directly attributable to the activities of those assuming to speak for the railroads.

IMPROVEMENTS IN THE RAILWAY MAIL SERVICE.

The importance of the railway post office as a means of expediting the delivery of mail is so great that the necessity for continued improvement is more urgent in this than in any other branch of the Postal Service.

The aim of the Post Office Department has been to readjust the Railway Mail Service so that the facilities will be equitably distributed throughout the country and the clerical force assigned in the most effective manner possible to bring about the highest standard of efficiency. It has also been the earnest endeavor of the department to see that justice be done in the matter of assignments and promotions of railway postal clerks. During the past year 10,083 of these employees, constituting 54 per cent of the entire force, were

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promoted not less than $100 each. The department has continued its vigilant endeavor to safeguard the lives of railway postal clerks and to improve the conditions under which they work. With this end in view all-steel cars are being secured for use of railway post offices and wooden and part-steel cars are being discontinued as rapidly as practicable.

DIVISOR CASE.

The divisor cases, involving the validity of order No. 412, issued in 1907, prescribing that the whole number of days included in the weighing period shall be used as a divisor for obtaining the average weight of mails carried per day upon which the compensation paid to the railroads for the carriage of the mails shall be based, are still pending in the Supreme Court of the United States, to which the claimants prosecuted appeals from the decision of the Court of Claims sustaining the validity of the order. The cases are on the calendar for reargument and it is expected they will be reached at an early date. The amount involved is estimated at about $42,000,000, which, if same had been paid, would have been so much additional to the excessive compensation the railroads have already received for the service of mail transportation.

PNEUMATIC-TUBE SERVICE.

The existing contracts for pneumatic-tube service expired on June 30, 1916. These contracts were entered into as the result of an advertisement issued on July 27, 1906, in pursuance of the act of June 26, 1906, and cover pneumatic-tube service in New York, N. Y.; Brooklyn, N. Y.; Boston, Mass.; Chicago, Ill.; St. Louis, Mo.; and Philadelphia, Pa. The tubes in use aggregate 56½ miles in length, and the annual rental paid is $961,955.20.

In accordance with the law, a committee of postal experts was appointed to advise the Postmaster General regarding the issuing of advertisements for the renewal or extension of this service. Pending the recommendation of the committee's report the present contracts were extended by the Postmaster General for six months and were later extended by Congress to March 4, 1917.

Following a thorough investigation and careful consideration by the department it has been decided to issue an advertisement for proposals to perform mail service by pneumatic tubes in the city of New York, N. Y., in the territory south of the Grand Central and Times Square stations, between the points between which pneumatic-tube service is now in operation and between the general post office at New York and the general post office at Brooklyn. A separate advertisement will be issued for the territory in New York north of the Grand Central and Times Square stations, between the points

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between which the service is now in operation. If contracts are entered into they will be for the term of 10 years and subject to cancellation by the Postmaster General on six months' notice. No advertisements will be issued for this character of service in any city except New York.

The action of the department in this important matter is based on the report of the committee, from which the following excerpts are taken:

Since the present contracts for pneumatic-tube service were entered into the domestic parcel post has been established, and has materially changed the conditions of Postal Service operation. The automobile truck, which is now used extensively in the commercial world, has also become available for the transportation of mail, so that the conditions prevailing in the service at present did not exist at the time of previous investigations.

The principal advantages of pneumatic tubes for the transportation of mail are:

(*a*) A high rate of speed between stations for limited quantities of mail.

(*b*) Freedom from surface traffic congestion.

The principal limitations and disadvantages of pneumatic tubes for the transportation of mail are:

(*a*) The capacity of each tube container is limited to about 5 pounds of letter mail, and all classes of mail can not be carried.

(*b*) The rapidity of dispatch of tube containers is limited to intervals of about 15 seconds, so that only about 20 pounds of letter mail can be dispatched each minute, thus necessitating the paralleling of the entire system of tubes by vehicular service at the time of heavy dispatches.

(*c*) Inability of tubes to carry many special-delivery parcels, owing to the limited size of the containers.

(*d*) The necessary relaying of containers at way stations involves loss of time and requires that all intermediate stations be kept open with attendants on duty.

(*e*) The inability to dispatch mail to intermediate stations during continuous transmission between any two points.

(*f*) Inability to dispatch mail to the point where it is received by or taken from the railroad companies without additional handling.

(*g*) Frequent complaints resulting from damage to mail, caused by careless locking of containers and by the accidental opening of containers in transit.

(*h*) Inability to prevent dampness and oil in the tubes at certain times, resulting in damage to the mails.

(*i*) Discontinuance of service on an entire line results from stoppage of operation of the tube at any point on that line.

(*j*) Inflexibility of the service, as it can not be expanded to meet recurring or emergent conditions, thus resulting in congestion.

(*k*) The terminal equipment of the tubes occupies a considerable amount of desirable space in post-office quarters, for which high rentals are paid by the department.

(*l*) The excessive cost of tube service ($17,000 per mile per annum).

The flow of pneumatic-tube containers may be made continuous, with minimum intervals of 15 seconds, and the rate of speed is high—about twice that of the automobile—but the capacity of the individual containers (about 5 pounds) makes the *volume* of the flow hopelessly small. Continuous flow is not characteristic of the movement of the mail, which fluctuates according to the schedules

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of arrivals and departures of trains and the schedules of collections and deliveries by carriers. This requires elasticity in the facilities for handling and transporting mail which is not provided sufficiently by pneumatic tubes.

For example, if 1,000 pounds of letter mail is received on one train for the main office, a sufficient number of clerks may be assigned to its distribution to prepare it quickly for dispatch by pneumatic tubes, but the capacity of the tube is inflexible, and 50 minutes will elapse before the container with the last portion of such quantity of mail is dispatched. If the distance to be traversed is 1 mile, an automobile truck traveling at the rate of 12 miles an hour will carry all this mail, *and the newspapers and parcels as well*, and reach the same destination before more than one-tenth of the attenuated column of tube containers could get under way. Besides, the mail received for intermediate stations, or those beyond the main office, can not be dispatched by the tubes during the time that the mail for the main office is being transported from the railroad station. It is this inflexibility of the pneumatic-tube service, its limited capacity, and its consequent unadaptability to ordinary postal conditions, which neutralizes practically all the advantages of its high rate of speed. * * *.

From a thorough consideration of the advantages, limitations, and cost of pneumatic tubes, as compared with other available means for transporting mails, the committee has concluded that this facility can be of practical and economical use in the postal service only when the mail is to be carried between points separated by relatively long distances of seriously congested surface traffic, and then only if the volume of mail throughout the day is sufficient to utilize a high percentage of the capacity of the tubes. These conditions exist in the territory south of Times Square Station and Forty-second Street in New York City and between the general post office of New York and the general post office of Brooklyn. The tubes in this territory aggregate about 13 miles in length.

With reference to the loop of tubes north of Times Square and Grand Central Stations in New York City, the committee states:

As this loop is a part of the system of pneumatic tubes in New York City, a portion of which we are recommending be continued, the company may be willing to operate it at a cost commensurate with the results obtained therefrom. In order that the company may have an opportunity to do so, we are recommending that a separate advertisement be issued for the service north of Grand Central and Times Square Stations, but that the contract be not renewed unless a very material reduction in cost is secured.

It is realized by the department that an impression exists among patrons of the mail service in the cities having pneumatic-tube service that the use of the tubes materially expedites the delivery of all letter mail. This impression has been entirely built up by those financially interested in the continuation of exorbitant and indefensible contracts. In some cities they have conducted an advertising campaign which absolutely misrepresented the facts. It is shown conclusively by the report referred to that in the major portion of this service the tubes offer but an unwieldy, unsatisfactory, and enormously expensive facility, which does not advance but rather retards the handling of the mails.

The department is extremely anxious to utilize any facility which will expedite the handling of the mails, but it never at any time has made a recommendation looking to the improvement of the Postal

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Service which it is more certain is just and meritorious than the proposed action with reference to this pneumatic-tube service. The department is fully aware that its action in this matter will be bitterly resisted. This interest to which the Government owes not the slightest moral obligation will offer every specious argument why existing conditions should be continued. Insidious lobbies, which will put forward as their spokesmen well-meaning but ill-informed citizens, who believe they are acting in the interest of better postal service, will bring directly and indirectly every influence possible to perpetuate this incubus; but the department has an abiding faith that if those with whom final responsibility rests will take the trouble to know the truth this handicap on efficient postal service will be promptly thrown off.

RURAL MAIL SERVICE.

As set forth in the last annual report of the Postmaster General, an investigation of the rural mail service developed many indications that gross extravagance prevailed in its operation and revealed a multitude of glaring examples of special favor and privilege. A comprehensive review of this service was therefore begun. The results thus far have been striking and seem to demand the completion of the undertaking.

During the year a revision of the service, having for its object the correction of the evils stated, was conducted in 329 counties in 29 States, resulting in a reduction of $1,359,162 in operating expense. This reduction, together with that of $654,280 made in like manner during the fiscal year 1915, aggregates $2,013,442, and with such funds all applications for new service or extensions have been granted where the requirements have been met.

The department has submitted an estimate of $49,000,000 for the maintenance of the Rural Mail Service for the fiscal year 1918. This amount will be ample for all legitimate and defensible purposes for this branch of the Postal Service. It provides for all current charges and for the establishment of at least 1,000 new routes during the next fiscal year. It is $4,000,000 less than the appropriation for 1917. The reduction is deemed feasible from the fact that the work of the department in endeavoring to equalize hours of labor, eliminate duplication of travel, unnecessary retraces, and all forms of privilege and favoritism, will largely decrease the cost of the service without impairing its efficiency in the slightest degree.

EXTENSION OF RURAL MAIL SERVICE.

From the beginning of the present administration on March 4, 1913, to April 1, 1916, a period of slightly more than three years, rural mail service was extended to 658,571 families, or approximately

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3,000,000 patrons, most of whom were formerly remote from any postal facilities. The work of establishing new routes and of extending routes already in operation has been expedited as much as possible, and it is proposed to continue this policy. The department intends to continue prompt action on the establishment of all meritorious rural service and to rapidly extend postal facilities to the entire rural population.

The number of families not now provided with reasonable postal facilities is largely conjectural, but it is estimated that there are some 2,000,000 families distributed over more than 1,000,000 miles of road. Many of these families are inaccessibly located, but how to supply the greatest possible number of them with rural, star route, or post-office service is a problem that will receive the very earnest attention of the department. All citizens are entitled to reasonable mail facilities, and it is believed that they can be accommodated without unreasonable increase in cost when the elements of extravagant operation have been removed. To this end the department has labored, and for this result it will continue to exert every energy.

COMPENSATION OF RURAL CARRIERS.

The joint resolution of Congress, approved March 4, 1915, prescribed that the pay of rural carriers should be based solely on the length of the routes served, but gave no consideration to such important factors as the number of pieces and weight of the mail handled and the time required to serve the routes. The present basis of pay is therefore not equitable, and the law should be changed so as to make it possible to equalize the compensation of these employees, it being believed that carriers who are handling large quantities of mail and whose tour of duty covers a full working day are entitled to higher rates of pay than those carriers who handle only a few dozen pieces of mail each day and are able to complete service within three or four hours. Legislation to remedy this condition should provide administrative leeway that will permit of the continued extension of mail facilities, and should allow compensation that will be adequate to meet any unusual condition or emergency that may arise. A draft of the legislation recommended appears on page 62 of this report.

It will be noted that the plan proposed provides for an increase to $2,000 in the maximum pay of rural carriers, that no mention is made of the type of vehicle a carrier shall use, and that no carrier shall be paid less than he now receives.

Since the automobile has come into such general use there appears to be no good reason for continuing the present designation of "horse-drawn" and "motor-vehicle" routes. Whether a carrier uses an

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animal or a machine in the performance of service is not necessarily a controlling factor in providing efficient service, except as local conditions may render one or the other modes of conveyance more advantageous to the extension of postal facilities in a particular rural community, and the effect such conveyance may have with regard to safety and celerity of delivery. Thousands of carriers are using automobiles on what are known as horse-drawn routes, while hundreds of routes of 30 miles or more in length are and have been for years successfully operated by horse-drawn vehicles. The department is continually receiving applications for the establishment of routes varying from 30 to 45 miles in length, many of which could be advantageously established on the passage of the legislation herein suggested.

Should this legislation be adopted, it would in a large degree finally dispose of all arguments and questions of service and compensation therefor that are now a matter of controversy and continual agitation. Under such conditions questions can only be raised as to the justice of an administrative standard fixed by the department, and necessarily such questions would be of a minor character and would not require legislation for their correction.

While there is a material increase in the maximum salary involved, it does not follow that there will be a corresponding increase in the cost of operation, for only those who to-day are denied justice, and who do not receive the compensation to which they are entitled, would in any event receive the maximum salary.

STAR ROUTE SERVICE.

One feature of postal activity to which this administration has given particular attention is that which has to do with the provision of mail facilities by way of star route service to the citizens who are doing pioneer work in settling the undeveloped mining, timber, and agricultural regions of the country. To these people postal facilities are of the utmost importance, and the department, realizing this necessity, has rapidly extended service to these far sections at an expense which seems excessive when compared with the actual postal revenue produced in return, believing that it is the duty of the Government to aid in this way in the development of these natural resources and that the eventual contribution, through such development, to the wealth of the country makes the investment a profitable one, even though it seems most unprofitable when viewed from the standpoint of postal revenue alone. Notwithstanding the heavy cost, largely due to the heavy parcel-post shipments during the year 1916, the department established service on 660 new routes, most of which are for the carrying of the mails to newly opened settlements in remote sections.

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POST ROADS.

Especial effort is being made to increase the function and scope of the Rural Delivery Service, but desirable extension has been handicapped in many localities owing to the poor condition of the roads to be traveled, and where local conditions preclude the expenditure of the necessary amount of money to obtain the improvements necessary to place the highways in a proper state of repair.

Mail facilities can not be extended to all rural residents until the highways in many localities have been properly repaired.

The cost of star route service will continue to be excessive where short stretches of bad roads increase the difficulties confronting contractors and render service unreasonably expensive.

On unimproved highways it is impossible to utilize the best type of modern vehicle having ample capacity to properly handle the postal business.

Appropriations for Federal aid in the improvement of post roads should be applied where they will materially assist in the extension of mail facilities, secure efficiency in the conduct of the mail service, and increase the use of modern motor vehicles in the conveyance of products of the farm, thereby providing an essential addition to the present limited rail and water transportation facilities, which are so rapidly approaching the limit of their carrying capacity.

To secure the maximum return from the expenditure of Federal funds for improved highways, and in order that such expenditures shall produce immediate and practical postal benefits, this department should be authorized by law to designate the post roads in each State entitled to Federal aid, the construction and improvement of which would remain under the supervision of the Department of Agriculture.

Experience has demonstrated that Federal buildings are in many instances located, and in the past have been erected, without due regard for the requirements of the postal service which was compelled to utilize same, thereby imposing an indirect but material increase in the cost of operating the postal service which could have been avoided.

So, in like manner, when a public road is improved, ostensibly for the advantage of the postal establishment, which thereafter can not be utilized for such purpose, the loss is self-evident.

VILLAGE DELIVERY SERVICE.

The village delivery has now become a permanent feature of the Postal Service.

Reports have been received from all offices where the service is in operation as to its workings. Existing irregularities have been cor-

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rected, and delivery provided over additional territory in many towns. The service has been extended gradually, and efforts made to inaugurate it proportionately throughout the country, applications having been accepted from such towns as seemed to have been provided with necessary civic improvements. At a less expense village delivery serves well as a preliminary to city delivery, which is established when all requirements of law have been met.

Village delivery service generally is not advisable or desirable in very small municipalities, and experience has shown that its establishment in such cases is not warranted. It is therefore recommended that legislation be enacted providing for the inauguration of this service only in towns where the post-office receipts have reached $5,000 during the preceding fiscal year.

MONEY-ORDER SERVICE.

Domestic money-order business so thoroughly recovered from the depression occasioned by the European war that the volume of business transacted again shows the usual healthy and normal growth. The decrease in the number and amount of international money orders issued, which began with the outbreak of hostilities in Europe, continued throughout the year, due principally to the return of many of the foreign-born population to their native lands, the increasing difficulty experienced in locating payees, and the serious delays imposed upon the service by the necessity for transmitting orders, advices, and money-order lists through lines guarded by the belligerents.

NEGOTIATIONS FOR EXTENSION OF MONEY-ORDER SERVICE.

Negotiations for extension of the money-order service by the conclusion of treaties with the Argentine Republic, Brazil, and Nicaragua are in a forward stage, but have been impeded by unfavorable financial conditions of those countries. Drafts of conventions have been exchanged, terms discussed, and a good understanding established, and this department now awaits approval of certain amendments proposed and an agreement as to the time for putting the exchange into operation.

POSTAL SAVINGS SYSTEM.

The continued growth of the Postal Savings System affords convincing evidence of the utility of this branch of the Postal Service. During the fiscal year just closed there was a gain of 77,523 in the number of depositors and $20,335,177 in deposits.

It has been a gratifying experience to watch the steady growth of postal-savings deposits. On March 1, 1913, there were approximately 310,000 depositors, with $30,026,325 to their credit; on June 30, 1916,

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there were approximately 603,000 depositors, with $86,019,885 to their credit. During the intervening period of three and one-third years, therefore, the number of depositors has doubled, while the deposits have increased threefold.

An amendment to the organic postal savings act, approved on May 18, 1916, marks an important epoch in the history of the Postal Savings Service. By the terms of the amendment a person may now deposit at interest any number of dollars and at any time until the balance to his credit amounts to $1,000. Moreover, the board of trustees is given discretionary authority to accept additional deposits to the amount of $1,000, but upon which no interest shall be paid. By the terms of the original act no one could deposit more than $100 in any one calendar month or have more than $500 to his credit. The effect of the liberalizing legislation was an immediate increase in postal savings deposits, which has continued unabated and unquestionably will result in restoring a large part of the hidden money of the country to the active channels of industry and commerce.

Facilities for banking postal savings funds also were enlarged by the amendment. While preference is still given to member banks of the Federal Reserve System to receive the funds arising in the communities in which such banks are located, it is now possible to use other banks in communities where there are no member banks or where the member banks fail to qualify.

BONDS OFFERED AS SECURITIES FOR POSTAL SAVINGS DEPOSITS.

Several changes have been made in the postal savings regulations during the year with a view to inducing uniformity in the bonds offered as security for the deposits of postal savings funds and simplifying the work of examination as to their legal acceptability.

The approval of municipal bonds as security for these deposits adds to their commercial value and, for that reason, various States have enacted legislation which has the effect of encouraging the issuance of bonds with special reference to their availability for use as postal savings security. A typical instance of this is a recent amendment by a State of its savings bank laws, providing that—

> The savings deposits of any bank maintaining a savings department may be invested in the following classes of securities and not otherwise:
>
> First. In interest-bearing bonds, notes, or obligations of the United States of America, or of those of which the faith of the United States is pledged for the payment of the principal and interest, *or in bonds acceptable to the United States Government to secure postal savings deposits.*

This influence with respect to the standardizing of municipal securities is an important incident to the work of legal examination of bonds by this department.

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STAMP SALES.

The annual report for the fiscal year 1915 showed the effect of the war conditions upon sales of stamped paper, which constitute about 89 per cent of the postal revenue. The war began in the first quarter of that year, and the sales increased only 2.31 per cent over the corresponding quarter of the fiscal year 1914. Low-water mark was reached in the second quarter, when a decrease of 3.11 per cent occurred. The two final quarters of the fiscal year 1915 showed progressive improvement, the decrease in the third quarter being but 2.39 per cent, while in the fourth quarter an increase of 0.16 per cent was recorded.

This improvement continued steadily throughout the fiscal year 1916, the increases being as follows: First quarter, 3.13 per cent; second quarter, 8.98 per cent; third quarter, 9.89 per cent, fourth quarter, 11.30 per cent. Perhaps no more striking illustration can be found of the swift effect of the world's great catastrophe upon commercial conditions in America and of the remarkable recovery which followed the blow.

The audited sales of the fiscal year 1916 aggregated $277,608,304.86, an increase of $21,571,296.35, or 8.43 per cent, over 1915, compared with a decrease of $2,384,943.53, or 0.93 per cent in 1915 below 1914. This increase is the greatest ever recorded, exceeding, it is interesting to note, the entire sales of the fiscal year 1873, amounting to $20,324,817.50.

FREE-MAIL PRIVILEGE.

Reference has been made in previous reports to the vast amount of matter carried in the mails free of postage. During the past fiscal year the free-in-county mailings of second-class publications amounted to 64,117,674 pounds, and the free mailings of Members of Congress and the various establishments of the Government, under the franking and penalty privileges, are estimated to be somewhat in excess of this. To this there must be added the large amount of free matter mailed by certain agricultural colleges and experiment stations, and also that pertaining to cooperative agricultural extension work, literature for the blind, copyright matter, etc. Notwithstanding the enormous and constantly increasing burden thus imposed upon the Postal Service, there are frequent efforts to secure the free-mail privilege for other purposes. Since the expense incurred in handling and transporting free matter must be defrayed from the receipts from the revenue-producing mail, thus imposing a greater charge on such mail than is necessary to cover its own cost, it is not believed, in view of the interests of the general public, that there should be any further extension of the free-mail privilege.

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While there is an occasional abuse of the free-mail privilege, it may be said that, generally speaking, those entitled to the privilege carefully observe the laws by which it is governed. In previous reports reference was made to certain abuses occasionally arising with respect to the franking privilege. The enactment of legislation such as is embodied in the printing bill now pending before Congress, which is designed to prevent such abuses, will go far toward confining the franking privilege to its legitimate function, thus reducing the amount of franked mail to a minimum.

INCREASED LIMIT OF WEIGHT OF FIRST-CLASS MATTER.

The 4-pound limit of weight formerly applicable to mail of the first class was removed by the act of May 18, 1916, under which the limit of weight of such matter is made the same as that for matter of the fourth class. A provision of this act prohibits the acceptance for mailing under the penalty privilege of any article or package exceeding 4 pounds in weight unless it comes within certain specific exceptions. Accordingly, official matter weighing more than 4 pounds and not included in the exceptions can not be accepted free under a penalty envelope or label, but may, if within the limit of weight for the class to which it belongs, be sent under postage paid at the appropriate rate.

MAILINGS WITHOUT STAMPS AFFIXED AND USE OF PRECANCELED STAMPS.

The act of May 18, 1916, greatly reduced the minimum number of pieces of third and fourth class matter which may be accepted for mailing without stamps affixed, the postage being paid in money, extended the privilege to certain second-class matter, and provided for the acceptance without stamps affixed of money and securities mailed at the first or fourth class rate by the Treasury Department. These modifications will be of material benefit to the public as well as to the Postal Service.

There has been a steady increase in the use of precanceled postage stamps by concerns mailing large quantities of other than first-class matter. Heretofore the precanceling has been done by the postmasters. Provision was made by the act of May 18, 1916, for furnishing to postmasters when practicable postage stamps precanceled by printing on them the name of the post office at which they are to be used. This will result in some saving with respect to the expense incurred in precanceling stamps for use at the larger post offices.

SECOND-CLASS MATTER.

Despite the material increase in the cost of print paper, mailings of newspapers and periodicals as second-class matter at the cent-a-pound rate and free of postage in the county of publication showed

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no sign of diminution during the fiscal year 1916. On the contrary, such mailings were greater than ever before, aggregating 1,202,470,676 pounds, an increase of 93,184,891 pounds, or 8.4 per cent, over those of the fiscal year 1915, the postage derived from such mailings amounting to $11,383,530.02. As pointed out in previous reports the cost of handling and transporting second-class matter is several times the revenue received therefrom, and as the volume of such matter is constantly increasing the necessity of taking some step to readjust the rates thereon becomes more and more apparent.

Now that Congress has provided a solution of the railway mail pay problem, if even a moderate step should be taken toward requiring those using the second-class mail privilege to pay a fair part of the cost of that service, it would then be possible to revise the rates on first-class mail and provide for penny drop-letter postage at all post offices, *and it is earnestly recommended that this be done.* In my last annual report reference was made to the report of the commission created in 1911 under a joint resolution of Congress to investigate the subject, which, after finding the cost of handling and transporting second-class matter to be several times the revenue therefrom, recommended that the postage rate thereon be increased from 1 cent a pound to 2 cents a pound, and attention was called to a further recommendation on the subject made by the department in January, 1914, in a letter addressed to the joint committee of Congress before which the question of proper rates of postage on second-class matter was then pending. In this letter it was recommended as the initial step in the direction of a readjustment of the postage rates on second-class matter on the basis of the cost of handling and transporting it that the rate on publications issued less frequently than weekly and on weekly publications other than newspapers be increased from 1 cent a pound to 2 cents a pound, leaving for future determination an additional increase if same should be found necessary or desirable.

As an alternative to this plan it is recommended that a flat rate of 1½ cents a pound on all second-class mail matter subject to the 1 cent a pound rate be considered, if such plan be regarded as more just and equitable. If neither one of these changes be adopted, and it is thought that there should be a distinction between advertising and other matter carried in any of such publications, it is then recommended that the rate of postage on publications entered as second-class matter issued less frequently than weekly, and on weekly publications other than newspapers, shall be 1 cent a pound or fraction thereof, except for such part of the publication as is composed of sheets devoted in whole or in part to advertising matter, the rates of postage upon which shall be the same as the rates which are applicable to third and fourth class matter, respec-

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tively, for the matter as it would be classified under those classes. This would not change the rate on newspapers, and would continue the 1 cent a pound rate on all matter other than advertising contained in other periodicals, but would apply higher rates to advertising matter carried in periodicals other than newspapers. Such higher rates would conform to the rates on third-class matter where applicable and to the zone rates applicable to fourth-class matter in other cases. Such a plan makes a distinction between newspapers issued as frequently as once a week and other publications, which distinction appears to be in accord with the initial act of 1792, and, although assimilating the advertising matter contained in other periodicals with its character under other classifications of third and fourth class matter, it nevertheless would continue the low rate on all subject matter other than advertising in such periodicals, in accordance with the policy expressed in the later enactments of Congress. As pointed out in the last three reports, until some such action shall be taken to properly readjust rates on second-class matter no serious consideration can be given to plans for revising and reducing rates on first-class mail.

The amount of advertising and rate of compensation therefor which a publication can obtain depends primarily upon the extent of its circulation, and by reason of this all sorts of ways and means are used to get subscriptions. Some of these methods are not subject to criticism; others constitute a flagrant abuse of the second-class mail privilege. A few of the latter, such as the use of premiums or other extraneous inducements and the practice of allowing agents to retain the entire amount paid by the subscribers, were discussed in some detail in my last report. As a result of such methods the circulation of many publications is inflated to an unreasonable extent and out of all proportion to a circulation in response to a genuine public demand based on their merits. During the past year these abuses have been made the subject of careful inquiry, with a view to taking such corrective action as may be necessary to prevent them.

FORWARDING AND RETURNING UNDELIVERABLE MAIL OF THE SECOND, THIRD, AND FOURTH CLASSES.

Under existing law matter other than of the first class which can not be delivered at the post office to which it is addressed can not be forwarded to the addressee or returned to the sender at another post office until the postage for its forwarding or return is first prepaid. This necessitates the holding of such undeliverable matter at the office of original address pending the notification of the addressee or the sender and the receipt of the required postage for its transmission to its ultimate destination. In the case of parcels containing

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perishable matter the contents are often spoiled before the forwarding or return postage can be obtained and the delivery of the parcels effected, the resultant loss frequently entailing hardship on the owners of the parcels. It is therefore believed that provision should be made for the prompt forwarding or return of undeliverable perishable matter, and also for the return of other undeliverable fourth-class matter and that of the second and third classes bearing the pledge of the sender to pay the return postage, the collection of such postage to be made upon delivery of the matter. This would expedite the handling and disposition of such matter in the mails and would relieve the Postal Service of the labor and expense of sending notices that the matter is held and will be returned on receipt of postage. A recommendation for legislation covering the matter will be found on page 61 of this report.

EFFICIENCY AND ECONOMY IN EQUIPMENT.

True efficiency and practical economy are the inseparable elements of progress. Temporary success, brought about through application of false methods of saving, is not efficiency. In construction work of permanent value it is necessary to tear down as well as to build. Hence, in the Postal Service it has been the policy of this administration to replace antique and obsolete equipment or systems with those which are modern and effective, as well as to adopt developed units of acknowledged worth. Things heretofore regarded as mere conveniences are now installed in post offices as essential equipment. The result has been real economy, not only in the vastly improved character of work obtained but in actual saving of money. For notwithstanding the abnormal increases in the prices of all commodities during the present unusual world conditions, the Post Office Department is able to show improvement in every line of postal activity requiring equipment and labor-saving devices, at steady annual reduction in cost. In some instances improved articles of the latest types are now being furnished to the service at not more than one-half the cost of equipment supplied for similar purposes as recently as four years ago. A silent proof of this claim may be found in the current appropriations for postal equipment, which have not increased in proportion to the rapid and phenomenal growth of the service.

The introduction of modern shop practice in the manufacture, repair, and distribution of postal equipment has been quickly followed by the establishment of improved office practice.

Ancient correspondence methods, archaic filing systems, and worn-out statistical procedure are being rapidly replaced throughout the postal service by up-to-date and standardized operations.

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Accurate costs are being obtained frequently on given operations, and extravagance and waste eliminated, and vast increase in postal achievement absorbed without addition to departmental force of employees and increased expenditure.

Further endeavor in this direction throughout the coming fiscal year will place the postal establishment on a basis that will compare favorably with any enterprise in the commercial world.

PURCHASES.

Despite unsettled conditions of the market resulting in the radical advance of prices in some lines of supplies and in others rendering it impossible to obtain supplies at all, the Post Office Department has been fortunate in its purchases. This is especially true as regards paper, which other departments of the Government have experienced difficulty in obtaining.

The purchasing agent has placed the buying of supplies for the department on a strictly businesslike basis, and in making purchases has, as far as practicable, followed the same lines that obtain in the commercial world. During the first three years this policy has enabled the department to materially reduce prices, and during the fiscal year 1916, notwithstanding rising markets, it was possible to obtain reasonable bids and prompt deliveries on practically every line of supplies.

Early in this year, in anticipation of a disturbed market, the entire year's stock of wrapping paper and other similar supplies were purchased.

The policy of the department to change certain screen-wagon contracts for the transportation of mail to a government-ownership basis materially enhanced the importance and responsibility of making purchases for the Postal Service. Approximately $300,000 has been expended in buying automobiles and accessories for this purpose. These purchases were made generally on rush orders, notwithstanding which the machines were delivered without serious delay or derangement of the service. Government-owned equipment has now been supplied to several of the larger cities, resulting in lower costs and a noteworthy improvement in the service, as shown elsewhere in this report.

The policy of government ownership is also being extended to canceling machines, as noted in past reports, 255 machines, at a cost of $48,450, having been purchased during the past year.

It is also gratifying to report that whereas contractors dealing with other departments of the Government have asked to be relieved from their contracts because of increased cost of raw material and labor, with one or two minor exceptions no such appeal has been

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made to the Post Office Department, and it has not been found necessary to cancel any of this department's contracts. Only one or two small contractors have been unable to make deliveries.

INSPECTION SERVICE.

The general scheme of reorganization of post offices in the larger cities of the country with the object in view of better administration and extensions and improvements in the service has been made possible through the cooperation of an efficient inspection service.

While these inspectors have materially assisted in this constructive work of the department, their activities have been directed along many other divergent lines. Fraudulent schemes and other swindling devices have called into play a high degree of skill in gathering evidence sufficient for a denial of the facilities of the Postal Service so necessary to their successful operation. The vigorous prosecutions for trespasses against the fraud statutes have not only been the means of stamping out these parasites of the public in scores of cases, but have had an otherwise wholesome effect as a deterrent to others who might be disposed to engage in this nefarious but profitable business.

Among the accomplishments of the inspectors during the past year have been their crusade against the pouch thief and train robber. Numerous cases might be cited as to the work done in this regard, but a noteworthy instance is that of a recent train robbery where the inspectors not only succeeded in apprehending two of the three robbers but recovered a large portion of the loot. In another instance involving the theft of a large amount of negotiable securities and jewelry the inspectors were likewise successful in apprehending all concerned in the conspiracy and in recovering the stolen property.

FRAUD ORDERS.

The department has continued strictly to enforce the laws authorizing the issuance of fraud orders against concerns and persons using the mails to defraud, and has closed the mails to more fraudulent enterprises than during any previous year of the administration, thus saving to the public many hundred thousands of dollars of which it would otherwise have been defrauded. The effect of the attitude of the department in this connection is apparent in the higher advertising standards now in force throughout the country and in the decrease in the number of flagrantly fraudulent schemes now attempted to be operated through the mails.

LOTTERIES.

So profitable are lotteries and kindred prize schemes to the promoters that the mails are still sought to be used in their operation,

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and all kinds of subterfuges are employed in an endeavor to evade the laws aimed at the suppression of such enterprises.

In addition to the lottery feature connected with these schemes, many of them abound in fraud. One particular kind of prize swindle against which many complaints were received was a plan by which itinerant piano sellers disposed of their inferior instruments at excessive prices by what is commonly known as the fake contest and prize credit voucher method. In an effort to close the mails to such enterprises criminal proceedings were instituted in a number of these cases, and thus far the courts have declared the plan of business to be fraudulent.

Some publishers of newspapers and periodicals continue to rely upon different forms of prize schemes for increasing their subscription lists, which schemes are usually furnished and conducted by outside promoters engaged in that particular line of business, the publishers themselves having little or nothing to do with the actual operation beyond publishing the matter upon their responsibility and paying for the subscriptions so secured. To make the plans attractive often many thousands of dollars are offered as individual prizes. In one case arising during the year the prizes amounted to over $1,500,000. Complaints against the unfair manner in which some of these alleged contests are conducted are numerous, and many of the higher class publications are now abandoning such methods of obtaining subscriptions.

POISONS AND MEDICINES IN THE MAILS.

The legislation which provides that poisons and other objectionable matter shall be nonmailable also provides that the Postmaster General may permit the transmission of same in the mails, "under such rules and regulations as to preparation and packing as he shall prescribe." Under this authority the department promulgated the regulation contained in paragraph 4, section 472, of the Postal Laws and Regulations, which provides that medicines and anesthetic agents, when properly packed, may be mailed by manufacturers or dealers or by licensed physicians, dentists, or veterinarians who prepare or prescribe these commodities. This regulation, however, has been nullified by the decision of the Circuit Court of Appeals in the case of Bruce *v.* United States (202 Fed., 98), which holds that the Postmaster General's authority in admitting poisons to the mails is limited to prescribing regulations relating to the "preparation and packing" of such commodities and does not permit him to limit the mailing of poisons to any particular classes of patrons. There is, of course, strong objection to opening the mails indiscriminately to the transportation of morphine, opium, and other habit-forming drugs. At the same time manufacturing chemists, physicians, and the like.

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should not be denied the use of the mails for any articles which are properly manufactured or prescribed by them and which are not in themselves dangerous or injurious to other classes of mails or to those handling the mails.

It is, therefore, desired that the words "as to preparation and packing" be eliminated from section 217 of the act of March 4, 1909 (35 Stat. L., 1131), in order that the limitation on the Postmaster General's discretion in admitting poisons to the mails may be removed. This matter is more fully treated in the report of the Solicitor, and the tentative draft of the desired legislation is included on page 700.

APPOINTMENT OF POSTMASTERS.

The work of appointing postmasters is now current, and the department is in a position to review the effect of the judgment it has exercised in passing on the appointment, reappointment, or retention of the postmasters at practically all post offices in the country. It is found that the service rendered to the people at post offices has been greatly improved, as is shown by a diminishing number of complaints and by expressions of approval in the press and elsewhere. In the department correspondence with postmasters is conducted with more facility and expedition than formerly, and the reports of post-office inspectors, as well as statements furnished by the Auditor for the Post Office Department, indicate that the ability of postmasters to conduct their post offices satisfactorily to the public and to the department is greater than it has been at any time in the past.

The increased efficiency of postmasters has been due not only to the care exercised in their selection, but also to the kind and amount of service required of them. No postmaster has been permitted to regard his position as a sinecure, but all postmasters have been required to devote not less than eight hours daily during the business hours of the day to their official duties and to assume the active direction of the postal operations committed to their charge. Wide discretion has been granted postmasters in the arrangement and adjustment of their facilities to meet local needs and demands for service, but complete subordination and cooperation has been required with respect to the important general policies of the department and the specific directions issued for standardizing the methods of work and organization in post offices. The department has not hesitated to remove such postmasters as have failed, after appointment, to measure up to the required standard of efficiency and performance.

Practically all postmasters of the fourth class now serving have been appointed as the result of competitive civil-service tests. The service in small communities throughout the country has been benefited by the impartial selection of the most competent persons avail-

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able to serve as postmasters, and by the appointment of those persons in accordance with procedure which makes the civil-service status of each unquestionable.

At the advent of this administration all fourth-class postmasterships had been covered into the classified civil service by the Executive orders of November 30, 1908, and October 15, 1912,[1] and civil-service procedure was established for all new appointments to these places. A large proportion of the incumbents, however, had been classified, by the terms of the orders mentioned, without regard to their efficiency and had not been required to submit to the tests prescribed in the orders for new appointments. The Executive order of May 7, 1913, was designed to correct this condition, and the examinations, investigations, appointments and reappointments made necessary by that order were completed during the ensuing three years. The postmasters, approximately 5,000 in number, who had been appointed in the previous administrations in accordance with the civil-service procedure to properly test their fitness were subjected to no further examination. All others were required to submit to open competitive tests of their capacity and fitness, in accordance with civil-service procedure.

In the case of every examination held by the Civil Service Commission, the names of the three eligibles receiving the highest rating were certified to the department. Although, under the civil-service law and regulation, the appointing authority is accorded complete discretion in the selection of an appointee from the three eligibles certified for any civil-service appointment, it was decided in the interest of civil-service principles to select for appointment as postmaster the first eligible, unless service reasons existed which would prevent. An order to this effect was issued. Nine-tenths of all candidates receiving the highest rating in tests held for appointments to these positions have been selected and appointed by the department. In one-tenth of the cases the person with the second or third rating was appointed, due to the disqualification of the higher eligible. Two-thirds of all postmasters who submitted to the tests were reappointed and classified. One-third of the number, representing those who were relatively incompetent, were superseded as postmasters by persons whose superior capacity had been established by examination or investigation.

The classifying of the position of postmaster of the fourth class has proven so satisfactory that there is every service reason why the classified service should be extended to include the position of postmaster at offices of the first, second, and third classes, and that legislation looking to that end is recommended on page 54 of this report.

[1] Except those in Alaska, Porto Rico, Hawaii, Samoa, Guam, etc.

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POST-OFFICE SERVICE.

The policy inaugurated in 1913 to reorganize the service at post offices in accordance with business practices and correct principles of postal management has been consistently advanced throughout the past year. This work has been facilitated by the final disposition of practically all outstanding appointments of postmasters. As it is the intention of the department to continue in office all postmasters who demonstrate their capacity to discharge the duties of their positions acceptably, increased vigilance and effort will be expected of postmasters as rapidly as they gain experience in the improved schemes of organization and the new methods of work.

Much along this line has already been accomplished. With a few exceptions, all post offices of the first class have been reorganized on the "two division" plan. By this arrangement, all finances are placed under one responsible head and all mail-handling operations under another. Each of these two supervisory officers is responsible directly to the postmaster whose executive duties are clearly presented to him by the need for coordinating the work of the two divisions. Formerly a number of more or less independent divisions existed in each post office and the practically impossible task of inducing cooperation among them was generally undertaken by the assistant postmaster. The results of the investigation of each post office have been reviewed at the department and valuable suggestions and improvements arising out of the investigation at one post office have been disseminated for the benefit of all post offices by circular letters, through the official publications of the department and in the routine procedure and correspondence of the several bureaus.

In many ways the effort to place the post-office service on an efficient and satisfactory basis has perfected and standardized the details of post-office management and work. The benefits of the improvements already made will be greater in years to come. The substitutes now employed gain comprehensive experience in post-office work, instead of being confined to one section, and are, therefore, more valuable when appointed to regular positions. Likewise, the clerical employees in post offices from whom future supervisory officers will be recruited are acquiring an understanding of more than one section of the post office. Eventually the progress of this work will bring about complete standardization of salaries and allowances, complete uniformity of methods, and complete interchangeability of personnel.

The thorough investigation and close analysis incident to this effort have shown the essential unity of the service at post offices. It soon became desirable to correct the line of demarcation between the mail transportation service and the post-office service, and thus to define the jurisdiction in cities of the First and Second Assistant

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Postmasters General, respectively. The need for this change was brought forcibly to the attention of the department by the increasing use of vehicles in the city delivery and collection service. Postmasters reported to the department that important economies might be effected by bringing about a combination of the vehicles used in this service and those used in the screen-wagon service. Very generally, the hours during which there was little employment of vehicles for screen-wagon service were the hours when delivery and collection work had to be performed. The conclusion was reached that the terminus of the intercity transportation line marks the division of authority, and accordingly the control over the screen-wagon service, mail-messenger service, and pneumatic-tube service was transferred, effective July 1, 1916, from the Second to the First Assistant.

The orderly arrangement of the service at post offices which had been brought out of the former chaotic and confused condition forcibly suggested the need for centralizing the control in the department over the administrative details of that service and bringing about the most businesslike conditions in the bureau having direct supervision over the post offices. For this reason Congress, at the instance of the department, created the Division of Post Office Service in the Bureau of the First Assistant Postmaster General. On July 1, 1916, the new division superseded the Divisions of City Delivery and Salaries and Allowances and, in addition to the work of the superseded divisions, assumed the duties incident to the services transferred on that date from the bureau of the Second Assistant.

The establishment of the Division of Post Office Service has clarified the organization of the department. Through this division, which initiates and records the action taken, the First Assistant is charged with the immediate management and control of all means for carrying on the Postal Service in all cities and towns.[1]

DELIVERY AND COLLECTION IN CITIES.

In the past four years free delivery of mail by letter carriers has been established in 243 additional cities, and the free-delivery territory of other cities has been so greatly extended that the additional number of patrons served is conservatively estimated at 5,000,000.

In 1912 four pounds was the limit of weight for a single piece of mail of any class and postage rates discouraged the mailing of parcels. The average weight of parcels at that time was less than 6 ounces. Nearly all mail in cities was delivered by letter carriers on foot, who also made collections from letter boxes. Vehicles were used on delivery routes in outlying sections and in some cities on collection routes, but no general need for vehicles had arisen in this service.

[1] Jurisdiction over Federal post-office buildings, however, remains with the Treasury Department.

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The parcel post, which was established in 1913, has brought about a different condition. The average weight of parcels now exceeds 1 pound 11 ounces, and the number of parcels carried in the mails annually has increased fourfold since 1912. Approximately one-third of these are received for delivery at city carrier post offices, and it has been necessary to provide facilities at every office for delivering parcels too large and bulky to be carried by a man on foot. For this reason the number of vehicles used at post offices has increased rapidly since 1913.

This administration has had to deal with a period of transition in the employment of vehicles at post offices. Therefore, while constantly endeavoring to standardize the equipments in use and to perfect the procedure followed in securing them, the department has instituted comparisons between the several kinds of equipment and the several methods of rental and purchase. For the present, it seems wise to be guided in the administration of vehicle service by the practical conditions in each city. Horse-drawn vehicles are preferred where the volume of mail for delivery is small and a greater expense can not be justified, or in sections of large cities where traffic is congested and frequent stops are necessary. The use of automobiles is preferable in all other instances, and with the growth of the service they are rapidly superseding the horse-drawn type of equipment.

Automobiles are secured in various ways. Allowances are made to postmasters for the compensation of carriers who furnish motor trucks in connection with their work, and for hiring machines from local garages. Combined contracts have been made for the performance by automobiles of screen-wagon service and collection-and-delivery service. In a number of cities Government-owned machines have been used to supersede rented and leased equipment for carrying the mail.

The automobiles, and the horse-drawn vehicles as well, used in cities for delivering mail to and from the post office, railway terminals, and postal stations, for delivering parcel-post mail to patrons, collecting mail from street boxes, and other purposes of the service, have been secured during the past year, partly by the First Assistant and partly by the Second Assistant. Satisfactory results have been obtained under this arrangement only because of the close cooperation between the bureaus concerned. It became apparent that much duplication of work and unnecessary administrative detail might be eliminated by assigning vehicle service in cities to the exclusive jurisdiction of one bureau. Accordingly on July 1, 1916, this subject matter was assigned to the First Assistant on the ground that vehicles used in cities are attached to the post office and may properly be

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differentiated from transportation service, which is under the jurisdiction of the Second Assistant.

NOTE.—For further information regarding the employment of vehicles at post offices for the fiscal year 1916 reference is made to the annual reports of the First Assistant and Second Assistant.

INTERCHANGEABLE PERSONNEL.

Heretofore in the annual reports of the Postmaster General attention has been invited to the need for more effective utilization of the entire force of postal employees, and to this end an amendment of existing law was recommended, the purpose of which was to make possible the creation of an interchangeable personnel. Clerks in each post office should be so trained in uniform methods that their transfer to other post offices may be effected, when mutually agreed upon, with the least possible detriment to the service; and they should also be readily transferable to the Railway Mail Service, where the experience they have gained would shorten the time required for training them. Space in railway post-office cars represents a large cost to the Government, and it is not economical to recruit the force for those quarters entirely from untrained and inexperienced candidates. Efforts are being made to facilitate the appointment to positions of railway postal clerks of post-office clerks who desire to enter the Railway Mail Service. Uniform examination requirements for entrance to the two branches of the service may be provided so as to allow the forces to be interchangeable. There is, however, an obstacle to the effective development of this plan. Under the existing law clerks in post offices can be transferred to the Railway Mail Service only at the minimum salary of $900 per annum in that service. With this limitation it is impossible to secure from post offices the best clerks for the Railway Mail Service. The law should be amended so as to permit such transfers at salaries not exceeding in any case the salaries received in the post-office service, and such action by Congress is earnestly urged as being distinctly in the interest of better mail service. A recommendation for suitable legislation to this effect will be found on page 66 of this report.

BONDS OF POSTMASTERS AND POST-OFFICE EMPLOYEES.

The effort of the department to secure legislation which would free it of the great handicap under which it labors as a result of the method of bonding its officers and employees failed of enactment last year.

Postmasters and postal employees are required by law to furnish bonds in sufficient amount to protect the Government against losses due to embezzlements or other derelictions by such postmasters and

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post-office employees. In some instances the bonds are given by personal sureties, but it is the general practice to procure bonds from commercial bonding companies on the payment of annual premiums. Each bond is in a fixed amount, and as loss in excess of that specified in the bond can not be collected from the surety the protection to the department is not adequate, and the securing, filing, verifying, and approving of the bonds as well as the examination every two years into their sufficiency and the responsibility of the sureties as required by law entail a vast amount of administrative expense. There is objection to this system of bonding on the part of the employees on account of the excessive premiums collected, which, in the aggregate, amount each year to several times the total amount of losses, and the labor and annoyance incident to yearly renewals.

It is believed that authority of law should be granted the Postmaster General for the establishment and maintenance of a guaranty fund by assessments against the salaries of those officers and employees who are now required to furnish bonds. Such a fund would provide reimbursement to the Government for the entire amount of every loss regardless of the amount of the individual bond, and the assessment levied against the salaries of officers and employees would be much less than the premiums now paid. Under this plan the amounts of the bonds required of the several classes of employees and postmasters may be equalized so that each will pay an amount in proportion to the opportunity for embezzlement. It will be entirely safe to do this under the guaranty-fund plan for the reason that the entire amount of the fund will be available for the reimbursement of the Government in the case of every loss.

The Postmaster General, therefore, earnestly renews the recommendation contained in his last annual report for this much-needed legislation. A draft of the proposed legislation will be found on page 55 of this report.

AERIAL MAIL SERVICE.

The remarkable development of the aeroplane has emphasized the purpose of the department to utilize it as an agency for the extension of the mail service wherever practicable.

Advertisements were issued during the year inviting bids for aeroplane service on one route in Massachusetts and on several in Alaska. Inability of possible bidders to obtain specially constructed aeroplanes for the proposed aerial mail service rendered the efforts of the department for the time without results. However, negotiations with aeroplane manufacturers are still in progress. At the same time the department is cooperating fully with the National Advisory Committee for Aeronautics looking to the establishment of a carefully conducted experimental aerial mail service.

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The department has also noted with interest the effort to transport mail from Chicago to New York by aeroplane.

From published reports of aerial operations abroad, it would appear that the dirigible balloon type of airship had been so perfected that it would convey great weight. In fact, the last statements that appear in connection with the subject assert that 300 passengers may be carried in an airship. This would approximate 15 tons net weight. The department is interested in determining the practicability of this method of transportation with a view to its utilization. It is suggested that authorization be given for experiments to be made with this type of conveyor. For aerial experimentations an appropriation of $100,000 is recommended.

POSTAL TELEGRAPHS AND TELEPHONES.

The Postmaster General renews the recommendations made in his last three annual reports that early action be taken by Congress declaring a Government monopoly over all utilities for the public transmission of intelligence. As soon as practicable, the telephone and telegraph systems of the United States should be incorporated into the Postal Establishment.

As the former reports pointed out, the private ownership of telephone and telegraph utilities places in private hands the control of important vehicles for the transmission of intelligence, and therefore infringes upon a function reserved by the Constitution to the National Government. Operation of these facilities inherently as well as constitutionally belongs to the Postal Service. Attention again is called to the legal precedents and the attitude of former Postmasters General, as briefly stated in my report for 1914:

> That it has been the policy of this Government to ultimately acquire and operate these electrical means of communication as postal facilities, as is done by all the principal nations, the United States alone excepted, is evidenced by the fact that the first telegraph line in this country was maintained and operated as a part of the Postal Service, and further by the act of July 24, 1866, which provided for the Government acquisition of the telegraph lines upon the payment of an appraised valuation, and again by the act of 1902, which directed the Postmaster General "to report to Congress the probable cost of connecting a telegraph and telephone system with the Postal Service by some feasible plan."
>
> It is an interesting fact that, whereas policies of government have been advocated and some adopted, the constitutionality of which have been seriously questioned, the principle of Government ownership and control of the telegraph and telephone finds its greatest strength in the Constitution. This opinion has been shared by practically all Postmasters General of the United States, who have held that the welfare and happiness of the Nation depend upon the fullest utilization of these agencies by the people, which can only be accomplished through Government ownership.

The Secretary of War has recommended the transfer of the Alaskan cables and telegraphs to the Post Office Department, and

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this department concurs in this recommendation that the Post Office Department be granted authority to take over and operate the telegraph and telephone facilities of not only Alaska but also Porto Rico and the Hawaiian Islands. Investigation has shown that conditions in these Territories favor the change. In Alaska a large part of the equipment and property being used for electrical communication is already owned and operated by the War Department and in Porto Rico by the insular government. As was stated in last year's report—

> The services are so detached geographically as to preclude complicated relationships with neighboring systems and are yet sufficient in extent to afford valuable experimental demonstration for the Postal Service looking to the administration eventually of a complete national service.

In this connection the Post Office Department will submit an estimate for the fiscal year 1918 for an appropriation of $300,000 to cover the expense involved in operating the Alaskan and insular services during the first year after their acquisition. A tentative draft for a bill effecting the transfer of the ownership and for the operation of the facilities involved is included in this report on page 63.

SITES AND PUBLIC BUILDINGS FOR POST-OFFICE PURPOSES.

In the last two annual reports of the Postmaster General attention was invited to the fact that an informal agreement had been reached between the Secretary of the Treasury and the Postmaster General whereby the Treasury Department would refer to this department all cases involving the selection of sites and the arrangement of the working space in the buildings erected for post-office purposes, and that the recommendations of the Post Office Department in each instance would be given consideration. Under this plan there has been thorough cooperation and satisfactory results have been obtained.

Many buildings are erected in cities where the cost of janitor service alone greatly exceeds the amount necessary to secure satisfactory quarters, including light and heat, under rental agreement, which is not believed to be a wise business policy. It is highly desirable that the public buildings erected for post-office purposes be standardized, and that their costs be commensurate with the needs of the service. If this were done, greater efficiency and economy in the Postal Service could be attained.

The growth of the parcel post has led to an increased demand from the business interests for the establishment of post-office stations in various sections of the large cities, which in many instances lessens the necessity for the erection of very large public buildings. However, there are a number of large cities in which the buildings used for postal purposes are wholly inadequate, and it is believed that the funds used for the erection of public buildings should be expended

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in these cities for the construction, not of ornamental buildings, but buildings designed to accommodate the Postal Service and furnish adequate facilities for handling the mails before any action is taken looking to the erection of buildings in small towns where they are not needed and can not be justified. The existing policy of erecting post-office buildings has imposed upon the Postal Service a permanently fixed charge for which it is not responsible and which has become burdensome. Inasmuch as the major portion of the Federal buildings are erected and used exclusively for post-office purposes the department feels that the time has arrived when some radical change should be effected in the present practice.

BRANCH POST OFFICES AND POSTAL STATIONS.

Attention is again invited to the advisability of removing the legal restrictions as to the establishment of branch post offices and postal stations, and providing for the establishment of non-accounting offices, which would make possible a more efficient and economical administration of post-office service.

Suggested legislation to effect the desired improvements may be found on page 54 of this report.

FINANCIAL SUMMARY.

Following is a statement of the audited revenues and expenditures of the Postal Service for the fiscal year 1916 compared with the year preceding:

Comparison of revenues and expenditures for the fiscal year ended June 30, 1916, with those of preceding year.

Items.	Fiscal year.	
	1915	1916
REVENUES.		
Ordinary postal revenues	$279,460,906.63	$303,232,143.36
Revenues from money-order business	7,174,964.24	8,130,545.47
Revenues from postal-savings business	612,294.40	695,000.00
Total revenues from all sources	287,248,165.27	312,057,688.83
EXPENDITURES.		
Expenditures on account of the current year	289,199,978.75	297,637,128.87
Expenditures on account of previous years	9,346,047.67	8,566,904.27
Total expenditures during year	298,546,026.42	306,204,033.14
Excess of expenditures over revenues	11,297,861.15	.....
Excess of revenues over expenditures	.....	5,853,655.69
Amount of losses by fire, burglary, bad debts, etc	35,447.82	24,419.62
Deficiency in postal revenues	11,333,308.97	.....
Surplus in postal revenues	.....	5,829,236.07

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Revenues in detail.

Postal revenues:	
Sales of stamps, stamped envelopes, newspaper wrappers, and postal cards	$277,608,304.86
Second-class postage (pound rate) paid in money	11,385,929.78
Third and fourth class postage paid in money	8,791,443.91
Receipts from box rents	5,112,831.81
Letter postage paid in money	.80
Receipts from foreign-mail transit service	113,612.27
Miscellaneous receipts	97,235.71
Fines and penalties	76,927.89
Receipts from unclaimed letters	45,856.33
Total postal revenues	303,232,143.36
Money-order revenues:	
Revenues from domestic and international money-order business	6,821,499.75
Revenues from invalid money orders	1,309,045.72
Total money-order business	8,130,545.47
Revenues from postal-savings business	695,000.00
Total revenues from all sources	312,057,688.83

Growth of the Postal Service.

RECEIPTS AND EXPENDITURES FOR CERTAIN YEARS FROM 1800 TO 1916.

Items.	1800	1810	1820	1830
Receipts	$280,804	$551,684	$1,111,927	$1,850,583
Expenditures	213,994	495,969	1,160,926	1,932,708
Excess of receipts	66,810	55,715	.....	.....
Excess of expenditures	.....	.....	48,999	82,125

Items.	1840	1850	1860	1870
Receipts	$4,543,522	$5,499,984	$8,518,067	$19,772,221
Expenditures	4,718,236	5,212,953	19,170,610	23,998,837
Excess of receipts	.....	287,031	.....	.....
Excess of expenditures	174,714	.....	10,652,543	4,226,616

Items.	1880	1890	1900	1904
Receipts	$33,315,479	$60,882,098	$102,354,579	$143,582,624
Expenditures	36,542,804	66,259,548	107,740,267	152,362,116
Excess of expenditures	3,227,325	5,377,450	5,385,688	8,779,492

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Growth of the Postal Service—Continued.

RECEIPTS AND EXPENDITURES FOR CERTAIN YEARS FROM 1800 TO 1916—Con.

Items.	1905	1906	1907	1908
Receipts	$152,826,585	$167,932,782	$183,585,005	$191,478,663
Expenditures	167,399,169	178,449,778	190,238,288	208,351,886
Excess of expenditures	14,572,584	10,516,996	6,653,283	16,873,223

Items.	1909	1910	1911	1912
Receipts	$203,562,383	$224,128,657	$237,879,823	$246,744,015
Expenditures	221,004,102	229,977,224	237,648,926	248,525,450
Excess of expenditures	17,441,719	5,848,567	.....	1,781,435
Excess of receipts	.....	.....	230,897	.....

Items.	1913	1914	1915	1916
Receipts	$266,619,525	$287,934,565	$287,248,165	$312,057,688
Expenditures	262,067,541	283,543,769	298,546,026	287,248,165
Excess of expenditures	.....	.....	11,297,861	.....
Excess of receipts	4,551,984	4,390,796	.....	24,809,523

ANNUAL EXPENDITURES, BY ITEMS, FOR THE YEARS 1907 TO 1916, INCLUSIVE.

Items.	1907	1908	1909
Service in post offices:			
Salaries of postmasters	$24,580,667.25	$25,602,973.86	$26,571,911.15
Salaries of clerks, etc	26,647,397.21	30,920,449.68	34,876,492.71
City Delivery Service	23,356,941.90	26,450,138.33	29,869,783.03
All other expenditures	8,788,126.13	9,649,691.38	10,061,092.05
Total	83,373,132.49	92,623,253.25	101,379,278.94
Railway Mail Service	15,178,374.82	17,390,532.15	18,356,800.13
Rural Delivery Service	26,666,889.22	34,455,269.59	35,586,779.50
Transportation of domestic mail:			
By railroads	49,758,071.01	48,458,255.34	49,869,374.52
By other means of transportation	12,002,580.70	11,962,539.41	12,382,475.27
Total	61,760,651.71	60,420,794.75	62,251,849.79
Transportation of foreign mail	3,031,038.24	3,084,025.44	2,943,849.32
Payment on account of invalid money orders	228,201.86	378,010.97	485,545.21

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Growth of the Postal Service—Continued.

ANNUAL EXPENDITURES, BY ITEMS, FOR THE YEARS 1907 TO 1916, INCLUSIVE—Continued.

Items.	1910	1911	1912
Service in post offices:			
Salaries of postmasters	$27,514,362.80	$28,284,964.11	$28,647,726.32
Salaries of clerks, etc	38,045,456.62	40,364,930.39	42,484,457.37
City Delivery Service	31,805,485.28	33,165,067.58	34,266,926.35
All other expenditures	10,405,405.69	11,063,406.74	11,118,292.23
Total	107,770,710.39	112,898,368.82	116,517,402.27
Railway Mail Service	19,389,414.44	20,105,909.40	20,711,675.12
Rural Delivery Service	37,073,732.64	37,145,756.65	41,889,522.80
Transportation of domestic mail:			
By railroads	49,405,311.27	50,583,122.96	51,691,301.21
By other means of transportation	12,534,500.99	13,175,365.83	13,288,790.46
Total	61,939,812.26	63,758,488.79	64,980,091.67
Transportation of foreign mail	3,203,821.23	3,315,349.28	3,917,370.94
Payment on account of invalid money orders	599,783.54	424,053.74	509,387.28

	1913	1914	1915	1916
Services in post offices:				
Salaries of postmasters	$29,126,662.47	$29,968,515.35	$30,400,145.92	$31,135,234.45
Salaries of clerks, etc	45,785,826.34	50,933,220.39	53,316,548.83	55,011,110.23
City Delivery Service	36,732,578.66	40,549,103.67	42,667,813.92	43,341,097.64
All other expenditures	11,809,403.32	13,182,327.07	13,552,037.56	13,884,696.33
Total	123,454,470.79	134,633,166.48	139,936,546.23	143,372,138.65
Railway Mail Service	22,925,614.11	26,265,352.16	28,408,243.10	28,515,474.87
Rural Delivery Service	45,702,412.20	47,443,711.99	49,805,851.17	51,964,734.97
Transportation of domestic mail:				
By railroads	51,959,387.66	56,155,496.31	59,576,288.13	61,692,460.85
By other means of transportation	13,375,142.06	15,037,105.35	17,337,637.76	17,239,945.11
Total	65,334,529.72	71,192,601.66	76,913,925.89	78,932,405.96
Transportation of foreign mail	4,258,621.29	3,768,101.91	3,273,436.38	3,117,984.67
Payment on account of invalid money orders	391,892.22	240,834.96	208,023.65	301,294.02

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EXPENDITURES IN DETAIL.

The audited expenditures of the Postal Service during the fiscal year were as follows:

Items.	On account of the fiscal year 1916.	On account of previous fiscal years.	Total.
Compensation to assistant postmasters and clerks	$54,963,971.23	$27,139.00	$55,011,110.23
Transportation of mails on railroads	52,829,557.19	4,668,629.42	57,498,186.61
Rural delivery	51,877,100.00	71,705.91	51,948,805.91
City delivery	43,136,818.35	56,613.13	43,193,431.48
Compensation to postmasters	31,086,525.59	48,708.86	31,135,234.45
Railway Mail Service	28,449,023.68	66,451.19	28,515,474.87
Transportation of mails on star routes	7,726,975.57	929,611.39	8,656,586.96
Rent, light, and fuel	5,129,310.81	29,725.58	5,159,036.39
Railway post-office car service	3,688,677.14	505,597.10	4,194,274.24
Transportation of mails—Wagon service	2,703,025.21	258,461.28	2,961,486.49
Transportation of foreign mails	2,228,341.83	565,062.50	2,793,404.33
Special delivery service	2,212,032.39	168.92	2,212,201.31
Mail messenger service	1,972,198.17	186,481.66	2,158,679.83
Manufacture of stamped envelopes	1,316,379.36	63,779.45	1,380,158.81
Post-office inspectors	1,185,331.95	30,874.15	1,216,206.10
Transportation of mails—Pneumatic tube service	881,781.40	80,013.61	961,795.01
Transportation of mails on steamboats	856,958.50	140,777.29	997,735.79
Manufacture of postage stamps	749,784.32	44,420.26	794,204.58
Transportation of mails—Electric and cable cars	616,969.17	83,814.03	700,783.20
Mail bags, etc	445,778.59	7,065.73	452,844.32
Freight on stamped paper and mail bags	386,323.52	122,534.42	508,857.94
Manufacture of postal cards	347,149.30	6,599.97	353,749.27
Payment of money orders more than one year old	301,294.02	.....	301,294.02
Miscellaneous items at first and second class post offices	295,671.22	1,413.08	297,084.30
Canceling machines	257,890.75	48,282.16	306,172.91
Mail transportation in Alaska—Star	227,934.69	66,085.20	294,019.89
Twine and tying devices	220,333.05	.....	220,333.05
Indemnities—Domestic registered mail	169,284.94	53,907.43	223,192.37
Village delivery service	125,645.18	4,670.00	130,315.18
Stationery	119,262.31	767.95	120,030.26
Supplies, money-order service	118,903.46	14,328.53	133,231.99
Supplies, City Delivery Service	117,590.69	30,075.47	147,666.16
Office appliances	114,679.32	3,240.36	117,919.68
Shipment of supplies	100,503.48	21,013.29	121,516.77
Mail-bag repair shops—Labor	98,996.81	38.75	99,035.56
Balances due foreign countries	94,748.52	220,065.30	314,813.82
Miscellaneous items, first and second class post offices—Purchases	77,116.20	13,272.12	90,388.32
Facing slips, etc	72,353.37	7,538.04	79,891.41
Letter balances and scales	59,651.44	5,865.86	65,517.30
Official and registry envelopes	49,571.25	3,911.95	53,483.20
Mail-lock repair shop—Labor	39,024.83	57.00	39,081.83
Stamping appliances	33,349.40	3,542.98	36,892.38
Mechanical and labor-saving devices	25,153.24	11,313.27	36,466.51
Rent of buildings—Post Office Department	24,000.00	8,000.00	32,000.00
Expenditures under 19 smaller items of appropriation	84,157.43	55,280.68	139,438.11
Total	297,637,128.87	8,566,904.27	306,204,033.14

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RECOMMENDATIONS FOR LEGISLATION.

By way of suggestion the following tentative drafts of legislation embodying certain recommendations of the department are submitted.

In order that the position of postmaster of the first, second, and third classes may be placed within the classified service the following legislation is suggested:

Provided, That hereafter the position of postmaster at offices of the first, second, and third classes, as well as fourth class, shall be within the classified civil service and all appointments to such positions shall be made in accordance with the civil-service rules: *Provided further*, That no person shall be eligible for original appointment to the position of postmaster who is over 65 years of age, nor shall any person hold such position after he has reached the age of 70 years: *And provided further*, That a postmaster at an office of the fourth class shall be eligible for transfer and promotion to the position of postmaster at an office of the second or third class within the same county, and that a postmaster at an office of the second or third class shall be eligible for transfer and promotion to the position of postmaster at an office within the State, and that a postmaster at an office of the first class shall be eligible for transfer and promotion to the position of postmaster at any office within the United States.

COMPENSATORY TIME FOR WORK PERFORMED ON SUNDAYS AND HOLIDAYS BY WATCHMEN, MESSENGERS, AND LABORERS.

In order that these employees may be given compensatory time which the law now provides be afforded clerks and carriers in first and second class post offices it is recommended that the following draft of legislation be enacted into law:

Provided, That hereafter when the needs of the Postal Service require the employment on Sundays or holidays of watchmen, messengers, and laborers they shall be granted compensatory time in the same manner as provided by law for clerks and carriers in first and second class post offices.

BRANCH POST OFFICES AND POSTAL STATIONS.

In order that the present legal restrictions as to population and distance from the principal office in the establishment of stations and branch post offices may be removed, and the department given reasonable latitude in this matter, the following legislation should be enacted into law:

That hereafter the Postmaster General may establish, under such rules and regulations as he may prescribe, one or more branch offices, stations, or nonaccounting offices of any post office, without regard to the population or distance from the principal office to which the branch office, station, or nonaccounting office is attached, for the transaction of such postal business as may be required for the convenience of the public.

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GUARANTY FUND IN LIEU OF BONDS.

To enable the department to bond its officers and employees the following recommendation is renewed:

That the Postmaster General is hereby authorized to prescribe regulations for the establishment and maintenance of a guaranty fund, to be derived from assessments levied against and collected from officers and employees of the Postal Service accountable for funds or property with which to make good losses resulting from the failure of any officer or employee of the Postal Service to properly discharge his official duty and for the indemnification of the Government and any person or persons sustaining such loss or losses by payments out of such funds; but nothing herein shall be construed as binding the Government or the Postmaster General to make any such payment or reimbursement.

RECLASSIFICATION OF SUPERVISORY PLACES AND SALARIES IN POST OFFICES.

To enable the department to organize post offices of the first and second classes on a businesslike basis and standardize the salaries of supervisory employees in an equitable manner the following legislation is proposed:

That on and after July 1, 1917, the compensation of employees other than those in the clerical grades in post offices of the first class shall be annual salaries, not exceeding the salaries shown below, graded in even hundreds of dollars, based upon the postal receipts for the preceding calendar year of the post office at which they are employed:

At each post office where the receipts are $40,000, but less than $60,000: Superintendent of finance, $1,300; superintendent of mails, $1,300.

At each post office where the receipts are $60,000, but less than $100,000: Superintendent of finance, $1,400; superintendent of mails, $1,400.

At each post office where the receipts are $100,000, but less than $150,000: Superintendent of finance, $1,500; superintendent of mails, $1,500.

At each post office where the receipts are $150,000, but less than $200,000: Superintendent of finance, $1,600; superintendent of mails, $1,600.

At each post office where the receipts are $200,000, but less than $300,000: Superintendent of finance, $1,700; superintendent of mails, $1,700.

At each post office where the receipts are $300,000, but less than $400,000: Superintendent of finance, $1,800; cashiers, $1,500; superintendent of mails, $1,800; assistant superintendent of mails, $1,500.

At each post office where the receipts are $400,000, but less than $600,000: Superintendent of finance, $2,000; cashiers, $1,600; superintendent of mails, $2,000; assistant superintendent of mails, $1,600; stenographers, $900 to $1,200.

At each post office where the receipts are $600,000, but less than $800,000: Superintendent of finance, $2,200; cashiers, $1,700; superintendent of mails, $2,200; assistant superintendent of mails, $1,600 and $1,700; stenographers, $900 to $1,200.

At each post office where the receipts are $800,000 but less than $1,000,000: Superintendent of finance, $2,400; cashiers, $1,800; superintendent of mails, $2,400; assistant superintendents of mails, $1,700 and $1,800; stenographers, $900 to $1,200; bookkeeper, $1,400.

At each post office where the receipts are $1,000,000 but less than $1,500,000: Superintendent of finance, $2,600; cashiers, $2,000; superintendent of mails,

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$2,600; assistant superintendents of mails, $1,800 and $2,000; stenographers, $900 to $1,200; bookkeeper, $1,500.

At each post office where the receipts are $1,500,000 but less than $2,000,000: Superintendent of finance, $2,800; cashiers, $2,200; superintendent of mails, $2,800; assistant superintendents of mails, $2,000 and $2,200; stenographers, $900 to $1,200; bookkeeper, $1,600.

At each post office where the receipts are $2,000,000 but less than $3,000,000: Superintendent of finance, $3,000; cashiers, $2,400; superintendent of mails, $3,000; assistant superintendents of mails, $2,000, $2,200, and $2,400; stenographers, $900 to $1,200; bookkeeper, $1,800.

At each post office where the receipts are $3,000,000 but less than $5,000,000: Superintendent of finance, $3,200; cashiers, $2,600; superintendent of mails, $3,200; assistant superintendents of mails, $2,200, $2,400 and $2,600; stenographers, $900 to $1,200; bookkeeper, $2,000.

At each post office where the receipts are $5,000,000 but less than $8,000,000: Superintendent of finance, $3,400; cashiers, $2,800; superintendent of mails, $3,400; assistant superintendents of mails, $2,400, $2,600, and $2,800; stenographers, $900 to $1,200; bookkeeper, $2,400.

At each post office where the receipts are $8,000,000 but less than $20,000,000: Superintendent of finance, $3,600; cashiers, $2,800; superintendent of mails, $3,600; assistant superintendents of mails, $2,400, $2,600, and $2,800; stenographers, $900 to $1,200; bookkeeper, $2,400.

At each post office where the receipts are $20,000,000 or over: Superintendent of finance, $3,800; cashiers, $2.800; superintendent of mails, $3,800; assistant superintendents of mails, $2,400, $2,600, and $2,800; superintendent of delivery, $3,800; assistant superintendents of delivery, $2,400, $2,600, and $2,800; stenographers, $900 to $1,200; bookkeeper, $2,400; auditor, $3,000:

And provided further, That there may also be employed at first-class post offices special clerks, foremen, and stenographers at a salary of $1,300 or more per annum, the total number at any post office not to exceed one at $1,300 for each $80,000 receipts; one at $1,400 for each $150,000 receipts; one at $1,500 for each $300,000 receipts; one at $1,600 for each $600,000 receipts; one at $1,700 for each $1,200,000 receipts; one at $1,800 for each $2,500,000 receipts; and one at $2,000 for each $5,000,000 receipts:

And provided further, That on and after July 1, 1917, the salary of station superintendents shall be based on the postal receipts and number of employees at their respective stations on the following basis:

When the receipts of a carrier station do not exceed $5,000 per annum the station shall have a credit of three points, and for each additional $5,000 a credit of one point.

When the receipts of a noncarrier station do not exceed $5,000 per annum the station shall have a credit of three points, and for each additional $30,000 a credit of one point.

When the employees (clerks and carriers, city and rural) at a station are three or less the station shall have a credit of one point, and for each multiple of three employees a credit of one point.

Stations having a credit of less than five points shall be in charge of a clerk at a salary not to exceed $1,200.

At stations having a total credit of five points or more the salary of the superintendent shall be as follows:

5 and 6 points, superintendent, $1,300.

7 to 9 points, superintendent, $1,400.

10 to 13 points, superintendent, $1,500.

14 to 18 points, superintendent, $1,600.

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19 to 23 points, superintendent, $1,700.
24 to 32 points, superintendent, $1,800.
33 to 44 points, superintendent, $1,900.
45 to 64 points, superintendent, $2,000.
65 to 100 points, superintendent, $2,100.
101 to 150 points, superintendent, $2,200.
151 to 200 points, superintendent, $2,300.
201 to 350 points, superintendent, $2,400.
351 points and over, superintendent, $2,500.

And provided further, That on and after July 1, 1917, there may be appointed at each second-class office a foreman at a salary not to exceed $1,300 per annum, but in no instance exceeding 50 per cent of the salary of the postmaster, graded in even hundreds of dollars.

And provided further, That on July 1, 1917, the position of assistant postmaster shall be abolished; that the assistant postmasters at offices of the second class shall be designated as foremen at their respective offices; and that the assistant postmasters at offices of the first class shall be designated as superintendents of finance at their respective offices.

FRAUDULENT DEVICES AND LOTTERY PARAPHERNALIA.

To exclude from the mails fraudulent devices and lottery paraphernalia, and matter relating thereto, amend section 3929, Revised Statutes, as amended, to read as follows:

SEC. 3929. The Postmaster General may, upon evidence satisfactory to him that any person or company is engaged in conducting any lottery, gift enterprise, or scheme of any kind offering prizes dependent in whole or in part upon lot or chance, or other contingency, or that any person or company is conducting any scheme or device for obtaining money or property of any kind through the mails by means of false or fraudulent pretenses, representations, or promises, or that any person or company is selling, offering for sale, or sending through the mails any article, device, or thing designed or intended for the conduct of a lottery, gift enterprise, or scheme of any kind offering prizes dependent in whole or in part upon lot or chance, or other contingency, or any unfair, dishonest, or cheating gambling article, device, or thing, instruct postmasters at any post office at which letters or other matter arrive directed to any such person or company, or to the agent or representative of any such person or company, whether such agent or representative is acting as an individual or as a firm, bank, corporation, or association of any kind, to return all such letters or other matter to the postmaster at the office at which they were originally mailed, with the word "fraudulent" plainly written or stamped upon the outside thereof, and all such letters so returned to such postmasters shall be by them returned to the writers thereof under such regulations as the Postmaster General may prescribe. But nothing contained in this section shall be so construed as to authorize any postmaster or other person to open any letter not addressed to himself. The public advertisement by such person or company so conducting such lottery, gift enterprise, scheme, or device that remittances for the same may be made by letters to any other person, firm, bank, corporation, or association named therein shall be held to be prima facie evidence of the existence of said agency by all the parties named therein; but the Postmaster General shall not be precluded from ascertaining the existence of such agency in any other legal way satisfactory to himself.

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Amend section 4041, Revised Statutes, as amended, to read as follows:

SEC. 4041. The Postmaster General may, upon evidence satisfactory to him that any person or company is engaged in conducting any lottery, gift enterprise, or scheme of any kind offering prizes dependent in whole or in part upon lot or chance, or other contingency, or that any person or company is conducting any scheme for obtaining money or property of any kind through the mails by means of false or fraudulent pretenses, representations, or promises, or that any person or company is selling, offering for sale, or sending through the mails any article, device, or thing designed or intended for the conduct of a lottery, gift enterprise, or scheme of any kind offering prizes dependent in whole or in part upon lot or chance, or other contingency, or any unfair, dishonest, or cheating gambling article, device, or thing, forbid the payment by any postmaster to said person or company of any postal money orders drawn to his or its order, or in his or its favor, or to the agent of any such person or company, whether such agent is acting as an individual or as a firm, bank, corporation, or association of any kind, and may provide by regulation for the return to the remitters of the sums named in such money orders. But this shall not authorize any person to open any letter not addressed to himself. The public advertisement by such person or company so conducting any such lottery, gift enterprise, scheme, or device that remittances for the same may be made by means of postal money orders to any other person, firm, bank, corporation, or association named therein shall be held to be prima facie evidence of the existence of said agency by all the parties named therein; but the Postmaster General shall not be precluded from ascertaining the existence of such agency in any other legal way.

Amend section 213, act of March 4, 1909 (Criminal Code), to read as follows:

SEC. 213. No letter, package, postal card, or circular concerning any lottery, gift enterprise, or scheme of any kind, offering prizes dependent in whole or in part upon lot or chance, or other contingency, or concerning any article, device, or thing designed or intended for the conduct of such lottery enterprise or scheme; and no lottery ticket or part thereof, or paper, certificate, or instrument purporting to be or to represent a ticket, chance, share, or interest in or dependent upon the event of a lottery, gift enterprise, or scheme of any kind offering prizes dependent in whole or in part upon lot or chance, or other contingency, and no article, device, or thing designed or intended for the conduct of such lottery enterprise or scheme, or matter relating thereto; and no check, draft, bill, money, postal note, or money order, for the purchase of any ticket or part thereof, or of any share or chance in any such lottery, gift enterprise, or scheme; and no newspaper, circular, pamphlet, or publication of any kind containing any advertisement of any lottery, gift enterprise, or scheme of any kind offering prizes dependent in whole or in part upon lot or chance, or other contingency, or containing any list of the prizes drawn or awarded by means of any such lottery, gift enterprise, or scheme, whether said list contains any part or all of such prizes, or containing any advertisement of any article, device, or thing designed or intended for the conduct of such lottery enterprise or scheme, shall be deposited in or carried by the mails of the United States or be delivered by any postmaster or letter carrier. Whoever shall knowingly deposit or cause to be deposited, or shall knowingly send or cause to be sent, anything to be conveyed or delivered by mail in violation of the provisions of

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this section, or shall knowingly deliver or cause to be delivered by mail anything herein forbidden to be carried by mail, shall be fined not more than $1,000, or imprisoned not more than two years, or both; and for any subsequent offense shall be imprisoned not more than five years. Any person violating any provision of this section may be tried and punished either in the district in which the unlawful matter or publication was mailed, or to which it was carried by mail for delivery according to the direction thereon, or in which it was caused to be delivered by mail to the person to whom it was addressed.

And amend section 215, act of March 4, 1909 (Criminal Code), to read as follows:

SEC. 215. Whoever, having devised or intending to devise any scheme or artifice to defraud, or for obtaining money or property by means of false or fraudulent pretenses, representations, or promises, or to sell, dispose of, loan, exchange, alter, give away, distribute, supply, or furnish, or procure for unlawful use any conterfeit or spurious coin, bank note, paper money, or any obligation or security of the United States, or of any State, Territory, municipality, company, corporation, or person, or anything represented to be or intimated or held out to be such counterfeit or spurious article, or to sell, dispose of, loan, distribute, supply or furnish, or obtain for unlawful use any unfair, dishonest, or cheating, gambling device or appliance, or any scheme or artifice to obtain money by or through correspondence by what is commonly called the "sawdust swindle" or "counterfeit-money fraud," or by dealing or pretending to deal in what is commonly called "green articles," "green coin," "green goods," "bills," "paper goods," "spurious Treasury notes," "United States goods," "green cigars," or any other names or terms intended to be understood as relating to such counterfeit or spurious articles, shall, for the purpose of executing such scheme or artifice, or attempting so to do, place, or cause to be placed, any letter, postal card, package, writing, circular, pamphlet, or advertisement, whether addressed to any person residing within or outside of the United States, in any post office, or station thereof, or street or other letter box of the United States, or authorized depository for mail matter, to be sent or delivered by the Post Office Establishment of the United States, or shall take or receive any such therefrom, whether mailed within or without the United States, or shall knowingly cause to be delivered by mail according to the direction thereon, or at the place at which it is directed to be delivered by the person to whom it is addressed, any such letter, postal card, package, writing, circular, pamphlet, or advertisement, shall be fined not more than $1,000 or imprisoned not more than five years, or both. All matter the deposit of which in the mails is by this act made punishable is hereby declared nonmailable.

POISONS IN THE MAILS.

To permit medicines composed in part or wholly of poison or poisons and anesthetic agents which are not outwardly or of their own force dangerous or injurious to life, health, or property, and are not in themselves nonmailable, to be transmitted in the mails from manufacturers or dealers to licensed physicians, surgeons, pharmacists, dentists, and veterinarians, when inclosed in packages in conformity with the requirements of the postal regulations, such packages to bear the label or superscription of the manufacturer or dealer in the article mailed, amend section 217 of the Penal Code

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by omitting the words "as to preparation and packing," so that said section will read as follows:

All kinds of poison, and all articles and compositions containing poison, and all poisonous animals, insects, and reptiles, and explosives of all kinds, and inflammable materials, and infernal machines, and mechanical, chemical, or other devices or compositions which may ignite or explode, and all disease germs or scabs, and all other natural or artificial articles, compositions, or materials, of whatever kind, which may kill or in anywise hurt, harm, or injure another or damage, deface, or otherwise injure the mails or other property, whether sealed as first-class matter or not, are hereby declared to be nonmailable matter, and shall not be conveyed in the mails or delivered from any post office or station thereof, nor by any letter carrier; but the Postmaster General may permit the transmission in the mails, under such rules and regulations as he shall prescribe, of any articles hereinbefore described which are not outwardly or of their own force dangerous or injurious to life, health, or property: *Provided*, That all spirituous, vinous, malted, fermented, or other intoxicating liquors of any kind are hereby declared to be nonmailable, and shall not be deposited in or carried through the mails. Whoever shall knowingly deposit or cause to be deposited for mailing or delivery, or shall knowingly cause to be delivered by mail, according to the direction thereon or at any place at which it is directed to be delivered by the person to whom it is addressed, anything declared by this section to be nonmailable, unless in accordance with the rules and regulations hereby authorized to be prescribed by the Postmaster General, shall be fined not more than $1,000 or imprisoned not more than two years, or both; and whoever shall knowingly deposit or cause to be deposited for mailing or delivery, or shall knowingly cause to be delivered by mail, according to the direction thereon or at any place to which it is directed to be delivered by the person to whom it is addressed, anything declared by this section to be nonmailable, whether transmitted in accordance with the rules and regulations authorized to be prescribed by the Postmaster General or not, with the design, intent, or purpose to kill or in anywise hurt, harm, or injure another, or damage, deface, or otherwise injure the mails or other property, shall be fined not more than $5,000 or imprisoned not more than ten years, or both.

FORWARDING AND RETURNING UNDELIVERABLE MAIL OF THE SECOND, THIRD, AND FOURTH CLASSES.

To provide for the prompt forwarding or return of undeliverable perishable matter and for the return of other undeliverable fourth-class matter and that of the second and third classes bearing the pledge of the sender to pay the return postage:

Hereafter, under such regulations as the Postmaster General may prescribe, fourth-class matter of obvious value which is of a perishable nature may be forwarded to the addressee at another post office charged with the amount of the forwarding postage, and when such matter of a perishable nature is undeliverable to the addressee it may be returned to the sender charged with the return postage: *Provided*, That other undeliverable matter of the second, third, and fourth classes may be returned to the sender charged with the return postage when it bears the sender's pledge that the return postage will be paid, such postage to be collected on delivery: *Provided further*, That when the sender refuses to furnish the return postage in accordance with his pledge, the acceptance from him of further matter bearing such pledge may be refused.

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DIVISION OF STATISTICS AND POSTAL INFORMATION.

To create a Division of Statistics and Postal Information in the Post Office Department, to secure data on the operations of the Postal Service for the guidance of the department and of Congress, and for the information of the public there should be included in the "act making appropriations for the legislative, executive, and judicial expenses of the Government for the fiscal year ending June 30, 1918, and for other purposes," under "Office of the Postmaster General," the following:

Division of Statistics and Postal Information: Chief of division, $3,600; assistant chief of division, $1,800; for the employment of experts, $10,000; in all, $15,400.

TO EQUALIZE PAY OF RURAL CARRIERS.

In order to equalize the pay of rural carriers and for other purposes, as set forth on page 24 of this report, the enactment of legislation in substantially the following form is recommended:

That on and after July 1, 1917, rural carriers shall receive a salary not exceeding $2,000 per annum, and their maximum salary shall be based on the length of their routes, the time required to serve them, and the number of pieces and weight of mail transported: *And provided further*, That on and after July 1, 1917, the minimum compensation of rural carriers shall be as follows: On routes of 24 miles and over, six times a week, $1,200 per annum, payable monthly; on routes 22 miles and less than 24 miles, $1,152; on routes 20 miles and less than 22 miles, $1,080; on routes 18 miles and less than 20 miles, $960; on routes 16 miles and less than 18 miles, $840; on routes 14 miles and less than 16 miles, $720; on routes 12 miles and less than 14 miles, $672; on routes 10 miles and less than 12 miles, $624; on routes 8 miles and less than 10 miles, $576; on routes 6 miles and less than 8 miles, $528; on routes 4 miles and less than 6 miles, $480. A rural carrier serving one triweekly route shall be paid on the basis for a route one-half of the length of the route served by him, and a carrier serving two triweekly routes shall be paid on the basis for a route one-half of the combined length of the two routes: *And provided further*, That no rural route on which the use of a motor vehicle would be required shall be established unless a motor vehicle can be operated thereon with reasonable regularity for 10 months in the year: *And provided further*, That when any route is authorized that absorbs or eliminates existing routes the carriers affected thereby shall be retained in the order of their relative efficiency.

VILLAGE DELIVERY.

To provide a limitation upon the establishment of village delivery service in order that it may not be inaugurated in small municipalities when not warranted:

That hereafter village delivery shall not be established in towns before the receipts of the post office during the preceding fiscal year have reached $5,000.

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TERRITORIAL TELEGRAPHS AND TELEPHONES.

To enable the department to acquire the telegraph and telephone utilities of Alaska, Porto Rico, and Hawaii, the following legislation is recommended:

That in order to promote the Postal Service the Postmaster General of the United States is hereby vested with a monopoly of the function and means of electrical communication for hire within Alaska, Porto Rico, and the Hawaiian Islands, except as hereinafter provided.

SEC. 2. That on and after July first, nineteen hundred and sixteen, the Washington-Alaska military cable and telegraph system shall be maintained and operated by the Post Office Department instead of by the War Department, as at present, under such rules and regulations as the Postmaster General may prescribe.

SEC. 3. That the Secretary of War is hereby authorized and directed to assign for duty on the Washington-Alaska military cable and telegraph system, in accordance with the request of the Postmaster General, not to exceed five officers and such number of enlisted men of the Signal Corps as may be deemed necessary, who, while so assigned, shall receive the pay and allowances to which they are entitled by law; and, further, that the Secretary of War shall discharge from the Army such enlisted men as the Postmaster General may desire to continue as civilian employees of the system, provided application for such discharge be made by the enlisted men concerned.

SEC. 4. That the telephone and telegraph lines, systems, and the radiotelegraph stations within Alaska, Porto Rico, and the Hawaiian Islands, other than the Washington-Alaska military cable and telegraph system and its appurtenances hereinbefore mentioned, employed in the transmission of communications for hire, and such as may be necessary of the central office equipment, underground cable, underground conduit, aerial cable, aerial wire, poles, building cable, subscribers' stations, including indoor wiring and drops to premises of subscribers, private branch-exchange switchboards, land, buildings, furniture and fixtures, tools and teams, stores, supplies, and all other property used in the telegraph, telephone, and radiotelegraph services and appropriate and necessary for the operation of the same by the United States, are hereby declared to be, and the same are hereby, condemned and appropriated to and for the use of the United States of America, to be used by it for such public purposes as may be proper.

SEC. 5. That it shall be the duty of the Postmaster General, and he is hereby empowered and directed, on the first day of July, nineteen hundred and sixteen, to take charge and possession of, in the name of, for, and by the authority of the United States of America, all telegraph and telephone lines in Alaska, Porto Rico, and Hawaii condemned in section four, as he may deem advisable. And it shall be the duty of the Postmaster General to use the properties and facilities of which he has taken possession in conjunction with the Postal Service for the transmission of telegrams, messages, correspondence, and communications under such rates and regulations as he may prescribe in order to promote the usefulness of the service to the public and to insure the receipt of revenue adequate to pay the cost of such service. The Postmaster General is hereby authorized during the fiscal years nineteen hundred and seventeen, nineteen hundred and eighteen, and nineteen hundred and nineteen to use so much of the revenues arising from the telephone, telegraph, and radiotelegraph businesses operated by the Post Office Department as may be necessary to em-

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ploy persons to operate the service, to pay rents, the costs of maintenance, and such other expenses as may be necessary for the proper conduct of the service, and shall render a report in detail of such expenditures to Congress at the beginning of each regular session thereof.

SEC. 6. That immediately after the passage of this act it shall be the duty of the Interstate Commerce Commission, on application by the Postmaster General, to appraise such properties as the Postmaster General may desire to acquire, such appraisals to be made in the order in which the Postmaster General elects to take over the properties, and award to the respective owners thereof just compensation therefor; and said Interstate Commerce Commission shall, as soon as possible thereafter, file an inventory of the physical assets in use and useful for conducting such services and the values of the same, proper allowance being made for depreciation. The said Interstate Commerce Commission shall have the power, and it shall be its duty, to summon witnesses, to compel such witnesses to testify, and to present such books and papers as may be necessary, and the commission shall give to all concerned the privilege of a full hearing on the awards; and the said commission shall file a separate award of appraisal for each ownership and give notice to the Postmaster General and the owner thereof of the filing of such award. It shall be the further duty of the Interstate Commerce Commission to prescribe such methods of keeping records and accounts as may be necessary to determine the changes in values of the properties between the date of the original appraisals and that of taking possession by the Postmaster General, if any such interval there be, which changes in values, if any, shall be added to or deducted from the original awards. If either party be dissatisfied with the amount of any award, such award may, on appeal by either party, be reviewed by the circuit court of appeals of the United States having jurisdiction where the owner has its principal office, which circuit court of appeals is hereby vested with jurisdiction for such purpose, and an appeal may similarly be taken from such circuit court of appeals to the Supreme Court of the United States for final review. The final award shall bear interest at the rate of four per centum per annum from the date the Postmaster General shall have taken possession of the property until the date of its final payment, which interest may be paid quarterly to the owners pendente lite on such principal sum as may, for that purpose, be agreed upon between the Postmaster General and the owner, the excesses or shortages, if any, in payments of interest, as determined by the amount of the final award, to be credited or debited in accordance with the final award.

SEC. 7. That the Secretary of the Treasury is hereby authorized and directed to make payment to the owners of such properties of the money due them under said awards as aforesaid out of the Treasury of the United States, and said owners shall be entitled to payment of such awards as compensation from the Treasury of the United States after the Postmaster General takes possession of the property valued in said awards, and the amounts of said awards are hereby appropriated to the parties entitled thereto out of the Treasury of the United States.

SEC. 8. The Postmaster General may confer the privileges by license on any Territory, county, municipality, company, association, or individual, under such regulations and conditions as he may prescribe, to construct and operate telegraph or telephone lines, as well as telephone exchanges and radio stations, or he may require that the same be operated by the Post Office Department, but he shall stipulate in said license the right of purchase by the United States.

SEC. 9. Whoever shall construct and operate any telephone or telegraph line for the conveyance of messages or communications for hire in Alaska, Porto

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Rico, and the Hawaiian Islands, without first securing from the Postmaster General a license so to do in accordance with section eight of this act shall be fined not exceeding $1,000, or imprisoned not less than one year, or both.

Whoever shall willfully interfere with the operation of the telephone, telegraph, or radiotelegraph services operated and controlled by the Post Office Department, or with the transmission of any telephone, telegraph, or radiotelegraph message, or with the delivery of any such message, or whoever being employed by the Post Office Department shall divulge the contents of any such telephone, telegraph, or radiotelegraph message to any person not authorized to receive the same, shall be fined not exceeding $1,000, or imprisoned not less than one year, or both.

All statutes relating to offenses against the property belonging to or in use by the Post Office Department, or the embezzlement, conversion, improper handling, unlawful retention, use, or disposal of postal or money-order funds, and to offenses against the mails, and the punishment provided for such offenses are hereby made applicable to the telephone, telegraph, and radio services operated by the Post Office Department.

All acts or parts of acts inconsistent with this act are hereby repealed.

TRANSFER OF CLERKS FROM POST OFFICES TO THE RAILWAY MAIL SERVICE.

To provide for transferring clerks from post offices of the first and second classes to the Railway Mail Service at salaries higher than the lowest in the Railway Mail Service:

That hereafter the Postmaster General may transfer, under such regulations as he may prescribe, clerks from post offices of the first and second classes to the Railway Mail Service at salaries not exceeding the salary which the clerks are receiving in the post offices at the time of such transfer.

For a more detailed account of the operations of the several branches of the Postal Service during the year attention is invited to the annual reports of the four Assistant Postmasters General and the Solicitor for the Post Office Department, with particular reference to the recommendations for legislation herein submitted.

Respectfully,

A. S. BURLESON,
Postmaster General.

REPORT OF THE FIRST ASSISTANT POSTMASTER GENERAL.

POST OFFICE DEPARTMENT,
FIRST ASSISTANT POSTMASTER GENERAL,
Washington, July 31, 1916.

SIR: I have the honor to submit the annual report of this bureau for the fiscal year ended June 30, 1916.

ADMINISTRATION OF THE POST OFFICE SERVICE.

Since the commencement of the administration, March 4, 1913, the Post Office Service, under the immediate direction of this bureau, has

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passed through an important period of change and development. At the outset three great problems confronted the bureau. First, it was necessary to devise effective measures for the conduct of the domestic parcel-post service, which had been established on January 1, and had been conducted for two months in an experimental way. Second, the new law providing that the eight hours' daily service of clerks and letter carriers must be scheduled within a period of ten consecutive hours went into effect on the day of the change of administration. At thousands of post offices compliance with this law involved serious difficulty in adjusting the schedules of the employees to the times of the arrival and departure of mail trains. The third great problem was that connected with the appointment of postmasters.

On October 15, 1912, President Taft issued an order classifying practically all postmasters at fourth-class post offices who had not been covered into the classified civil service by the Executive order of November 30, 1908. The result of this action was to extend civil-service status to thousands of persons who had submitted to no test of their fitness or qualifications. President Wilson, without disturbing the action taken by his predecessor in placing the positions involved within the jurisdiction of the Civil Service Commission, issued an order on May 7, 1913, requiring the incumbents of those positions to stand an open competitive examination, under the procedure of the Civil Service Commission. Thus the administrative duties involved in the appointment of 40,000 fourth-class postmasters were thrown on this bureau, which was already charged with the function of initiating and recording appointments by the President of postmasters at first, second, and third-class post offices.

In the ensuing three years and a half other serious problems have arisen. The business of the country was of a sudden violently depressed on the outbreak of the European war in August, 1914, and it was necessary to restrict postal expenditures to the lessened demand for postal facilities. The task of the bureau was made difficult by the fact that allowances in liberal amounts, having been granted in the expectation of normal conditions, were outstanding in the hands of postmasters. The problem during the fiscal year 1915 was thus one of retrenchment under an abnormal condition of international depression. During the year on which report is being made a different problem arose. The postal appropriation bill for that year failed of passage and Congress enacted a resolution continuing in effect for 1916 the appropriation act of 1915. Then, too, the fiscal year 1916 was marked by unprecedented national prosperity and a complete reversal of the depression of 1915.

Normal business conditions, which had been interrupted by the outbreak of hostilities in Europe, were restored by the beginning of the fiscal year 1916. Throughout the year business of all kinds has prospered and developed with an acceleration which could not have been hoped for by the most optimistic. This gratifying situation has been reflected in the rapid increase of postal revenues. The revenues of 1915 amounted to $287,248,165.27, and were slightly less than those of 1914, but the revenues of 1916 have reached a total of $312,057,688.83, and exceed those of 1915 by 8.63 per cent. As a natural consequence it was necessary to improve and expand postal facilities

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in all parts of the country, and this has been done in spite of the fact that increased appropriations were not granted by Congress.

During the present administration the natural increase of the country in population has gone hand in hand with increasing prosperity and increasing use of the mails. The annual per capita expenditure for postage has increased since 1912 from $2.58 to $3.04, and the gross postal revenue from $246,744,015.88 to $312,057,688.83. The demand of the public for the safest and most expeditious handling of the mail has become with each year more exacting. A disproportionate increase in the urban population has made necessary great extensions of the free delivery of mail by letter carriers. Early in 1913, the vast express business created by the parcel post very soon made necessary the use of vehicular equipment for effecting prompt and economical deliveries. The number of parcels delivered by vehicle increased from 62,000,000 in 1914 to 72,000,000 in 1915, and 82,000,000 in 1916. These figures represent the parcels of the greatest weight and size. The rapid increase in this feature of the service has brought with it many exacting problems in organization and management.

In dealing with these problems of an expanding and changing service, the fundamental principles of the postal establishment were made the basis for the policies of the bureau, and a definite constructive program was outlined at the outset. This program embraced the appointment and retention of postmasters, both presidential and fourth class, only on proved and continued merit and capacity; the reorganization of all post offices along the lines of modern business principles; the formulation and enforcement of standard methods in the performance of post-office work; the equalization of service as between individuals and as between communities; the improvement of post-office quarters and the conditions under which employees work; the recognition and promotion of merit, wherever found in the service, and the transfer of employees from duties to which they were not adapted to other positions where their services and especial qualifications could be used to better advantage.

EXTENSION AND GROWTH.

The number of clerical employees in post offices has increased from 33,714 in 1912 and 38,761 in 1915 to 40,127 at the close of the fiscal year on which report is being made. The number of city letter carriers, which was 29,962 in 1912 and 32,902 in 1915, is now 34,114. During the past year city delivery service has been established at 56 additional post offices, bringing the total number of city-delivery post offices to 1,864, as compared with 1,621 four years ago. The territory served by carriers at the older and larger city-delivery post offices has also been greatly extended under this administration, so that altogether the number of people served by city letter carriers has been increased during the past four years by not less than 5,000,000. During the past year 372 fourth-class post offices have been advanced to the third class; 207 third-class post offices have been advanced to the second class, and 34 second-class post offices have been advanced to the first class. In the four-year period 965 post offices have been advanced from the fourth to the third class, 381 from the third to the second class, and 110 from the sec-

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ond to the first class. In four years the average annual salary of letter carriers has increased from $1,080.22 to $1,115.46, and of clerks from $1,041.99 to $1,093.44.

APPROPRIATIONS AND EXPENDITURES, 1916.

The service during 1916 was administered under a resolution of Congress renewing the appropriation of 1915 for that purpose. It would have been quite impossible to maintain satisfactory facilities and make the necessary extensions under this appropriation in a year of such prosperity and expansion, had not efforts toward standardization and more efficient management made it possible to reduce the rate of expenditure that had obtained in previous years.

The appropriations for the service of the bureau aggregated $138,901,200 for the fiscal year 1915, and, under the resolution referred to, the appropriation for 1916 was restricted to the same amount. At the close of the fiscal year 1915 an unexpended balance remained of the appropriations administered by this bureau of five and three-quarters millions. The administration of the service during the fiscal year 1916, under the appropriation carrying the same amount, resulted in an unexpended balance of slightly less than two and one-half millions.

REORGANIZATION OF POST OFFICES.

Prior to the advent of the present administration postmasters had been left almost entirely to their own devices in the organization and conduct of the work at post offices. It was found that in the delivery of parcels by vehicle at the 50 largest post offices the cost per parcel varied from 1 cent to 6 cents. Further investigation showed that the varying costs were due largely to lack of uniformity in equipment and methods, and that the need for standardization extended to every branch of the Post Office Service. Commissions of postal experts were immediately sent into every section of the country to study at first hand the existing organizations and methods, and to recommend to the bureau the steps necessary to improve and standardize the service. As rapidly as possible the larger post offices were placed on a thoroughly satisfactory basis. The plan of organization involved the elimination of unnecessary independent divisions in post offices and the creation of two divisions, one in charge of the records, accounts, and financial services, and the other in charge of the mail-handling operations. The heads of these divisions were made coordinate and responsible directly to the postmaster, who became the active executive of the post office. A simple and effective accounting system, providing a double check on every money transaction, was devised for the protection of the funds and of the employees handling the funds. Every detail of the post-office work was intensively studied by the commissions, and many improvements and short cuts were placed in effect. The personnel of the post offices received attention, and changes were made in order that each employee might be assigned, as far as practicable, to the duties which he was peculiarly fitted to perform. It was found to have been an almost universal condition, under the old organization, that while the work of one section was suffering for the lack of sufficient help, another section at the same time might have idle employees, and that there was no arrangement for adjusting the assignments of employees from hour to hour.

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This was corrected by the merging of the mailing, city, carrier, parcel-post, registry, money-order, postal savings, finance, stamp, and second-class sections and divisions (all more or less independent) into the two large divisions of mails and finance. The schedules of clerks and carriers were found generally not arranged in the most scientific manner with reference to the fluctuation of work; and collections, deliveries, and dispatches did not bear the intimate relation to the arrivals and departures of trains which is essential to expeditious mail service. By thorough study and careful tests these matters were corrected. The arrangement of furniture and equipment, the allocation of space to the different classes of work, the kind and condition of labor-saving devices, the heat, light, and sanitation of the premises, all came in for their full share of exhaustive research and certain scientific readjustment and improvement. The recommendations in the case of each post office were analyzed by the bureau and concrete instructions issued to the postmaster. After a reasonable time each post office was again investigated to determine the effectiveness of the new organization. With the disbanding of the special commissions at the close of the fiscal year 1914 the reorganization of post offices proceeded uninterruptedly under the direction of post-office inspectors. At the present time the large post offices, which handle 75 per cent of the Nation's mail, have been made to conform to the standard principles of organization and management. The bureau has also circularized all postmasters with letters of instruction embodying the most important of the new methods.

Following the campaign for the improvement of the post offices generally, special investigations of the facilities for delivering and collecting the mail have been made at large post offices. Reasonable standards of work for the carriers and scientific methods of districting cities into carrier routes according to the elements which enter into city delivery service have been established and the supervision of the delivery and collection work strengthened at each post office.

This campaign, now completed, has injected into the Post Office Service a degree of uniformity, standardization, and efficiency hitherto unknown; has strengthened and straightened the lines of control from the department to the postmaster and down through the new post-office organizations to the ranks of postal workers, and has laid the groundwork for continuous constructive development.

It is desirable that favorable consideration be given by Congress to the legislation recommended by the Postmaster General in his annual report covering the fiscal year 1914 for classifying the salaries of supervisory post-office officials. This legislation in addition to standardizing the salaries prescribes the number of supervisory officers to be assigned to each post office, and will have the effect of preventing inequalities in the service in this respect. This legislation was approved by the House of Representatives two years ago, and the recommendation for its enactment was renewed in the Postmaster General's report for the fiscal year 1915.

PARCEL POST.

Three and one-half years have elapsed since the parcel-post law, after prolonged controversy and debate, went into effect on January 1, 1913. From the beginning the service was liberally patronized by the public, and the volume of the traffic justified the department

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in making important reductions in postage rates on August 15, 1913, and January 1, 1914. At the present time the number of parcels handled in the mails is three times as great as at the commencement of the administration, and the weight of the parcel mail has increased sevenfold. Many difficulties have been encountered and successfully overcome in adjusting the facilities of the Post Office Service to the proper conduct of the parcel-post business. New methods of distribution and delivery have been devised in order that this merchandise mail might be handled expeditiously and safely and without retarding the progress of other classes of mail. These methods have become so perfected that the holiday mail in December last, which was greatly augmented by the shipment of gifts by parcel post, was successfully dispatched and delivered on time at practically every post office.

The benefits of the parcel post to the public are now self-evident; its benefits to the Postal Service also should be recognized. The increasing volume of the mail has necessitated, as the increasing revenue has justified, service improvements all along the line. The effect on the personnel of the service has been marked. Postmasters, supervisory officers, and employees have become imbued with a new spirit of cooperation and emulation, and have quickened their efforts to improve their own efficiency and the effectiveness of the service. Parcel-post exhibits conducted at fairs and expositions by postmasters have elicited the interest and approval of the public. Postmasters, in many other ways, have been active in bringing together the interests of their communities and of the Postal Service. They have enlisted the cooperation of boards of trade and chambers of commerce, and by their personal efforts and by circularizing their patrons have induced a more intelligent and effective use of the mails.

In observing the development of the parcel post, it has been found that although more than 70 per cent of parcels mailed emanates from the 50 largest cities of the country, these cities receive only 17 per cent of parcels for delivery. The smaller post offices, which receive 65 per cent of the parcels, dispatch only 9½ per cent. The parcel post offers the same advantages to residents of small communities and rural districts that it does to the business man in the city; but the former class, while availing themselves of the opportunity to buy by mail, have been slow to avail themselves of the opportunity to sell by mail. This condition has placed the postmasters at fourth, third, and second class post offices at a disadvantage. The compensation of fourth-class postmasters is based on the cancellations of postage on outgoing mail; and the salaries of third-class and second-class postmasters, as well as the allowances granted for the service at their post offices, depend indirectly on the volume of mail dispatched. They receive no credit for the excessive quantity of mail incoming. With a view to enhancing the value of the parcel post to the general public, and at the same time equalizing the positions of the large and small post offices with respect to that service, the farm-to-table movement was inaugurated. This suggestion to the people has received generous publicity at the hands of the press, and has been encouraged in every way possible by the department and the postmasters. The effect is known to have greatly increased the incoming shipments of farm produce at large post offices, and it may reasonably be expected that this desirable traffic will continue to grow.

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VEHICLE SERVICE IN CITIES.

Vehicles were not extensively used in the delivery and collection of mail prior to the establishment of the domestic parcel post. The use of such equipment was authorized by the department only when the distance to be traversed or the weight of the mail to be carried on a delivery route was too great for the satisfactory performance of service by a carrier on foot. In the large cities, vehicles were used to a limited extent for collecting the mail from mail boxes.

The admission to the mails of large parcels made necessary the provision of vehicular delivery to all sections of cities, for it soon became impracticable to deliver this class of mail entirely by carriers on foot. The growth of parcel-post traffic has necessitated each year the employment of a greater number of vehicles for city-delivery purposes. In view of the increasing expense incurred for this equipment, special attention has been given to the questions involved in its selection, purchase, rental, and operation.

The advantages of horse-drawn and motor vehicles with reference to the delivery and collection of mail have been discussed in preceding reports. It is the practice of the department to decide in each instance, as between these two types, on the celerity, convenience, and cost of performing the work.

The obvious advantages to be gained from using the same vehicles for collecting and delivering ordinary mail and for delivering parcels were recognized and secured from the outset. Vehicles purchased or rented under appropriations for the delivery and collection of mail in cities have been used interchangeably in all branches of that work. For similar reasons this bureau suggested that more advantageous contracts for screen-wagon service might be secured, if the advertisements should give bidders the privilege of making proposals for furnishing city delivery and collection vehicles in combination with proposals for performing screen-wagon service. It was believed that one contractor in many instances would be in a position to perform both contracts in the same city at a lower price than the aggregate price of two contractors performing the two contracts separately. At the Postmaster General's direction, this bureau arranged with the bureau of the Second Assistant for the issuance of such advertisements in the third contract section, in which contracts for screen-wagon service expired on June 30, 1915. Under these advertisements, contracts were entered into for the performance of combined screen-wagon and city delivery and collection service at a number of cities. In 13 of these cities, the combining of the contracts for screen-wagon and city delivery and collection service, effected a saving at the annual rate of $48,637.62.

Under the authority of the appropriation act, approved March 9, 1914, combined screen-wagon and city delivery and collection service has been operated during the past two years in a number of cities by automobiles owned by the department. The results obtained will be reported by the Second Assistant. It will be the policy of this bureau to extend the use of Government-owned automobiles in the light of experience gained.

Government ownership of vehicles used in the Post Office Service has been introduced into Chicago (Ill.), Philadelphia (Pa.), St. Louis (Mo.), Detroit (Mich.), Indianapolis (Ind.), and Washington

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(D. C.). On November 1 next it will be established at Pittsburgh (Pa.) and Nashville (Tenn.). Experience thus far indicates that it may be desirable to conduct vehicle service in this manner in every city in which a sufficient number of automobiles are used by the post office to reduce to a reasonable amount the expense per machine for garage and repair facilities and for expert supervision.

All vehicle service in cities has been placed under the jurisdiction of this bureau, effective July 1, 1916. The appropriations have been merged into one item, including authority for the purchase and maintenance, as well as the renting of equipments and contracting for service. In arranging for the transportation, delivery, and collection of mail at cities in accordance with local conditions, the bureau will be free to use automobiles or horse-drawn vehicles, and to secure these by purchase, by formal contract for service or for equipments, or under allowances to postmasters. In other words, the bureau has been given full discretion in the administration of this appropriation and may secure vehicle service at each post office in the most advantageous manner. The advertisements issued for such service in the second contract section were prepared so that bidders might make proposals for performing screen-wagon service, for furnishing part or all of the equipment to be used in delivery and collection work, for performing screen-wagon service and furnishing the delivery and collection equipments, or for furnishing equipments to be used interchangeably in transportation, delivery, and collection work.

POSTMASTERS.

PRESIDENTIAL.

The standard of efficiency for postmasters established at the outset of the administration has been continuously maintained. The qualifications of candidates for appointment as postmasters at offices of the Presidential grade have been examined with thoroughness and care, and no postmaster has been retained who has not demonstrated his ability and willingness to assume the personal direction of his post office, and to cooperate in the policies of the department.

The practice has been followed in the case of Presidential appointments made necessary by the advancement of post offices from the fourth class of recommending to the President the reappointment of incumbents who have rendered satisfactory service. It is the opinion of the bureau that the interests of the service would be promoted if legislation were enacted extending the same civil-service procedure followed in the appointment of fourth-class postmasters to the appointment of all postmasters of the second and third classes.

It has been found that the expense to which third-class postmasters are put in securing necessary clerical assistance is not covered by the allowances granted by the department for the purpose. The annual appropriation has not been sufficient to enable the department to grant the maximum amounts which may be allowed, except in extraordinary cases. The appropriation for the current fiscal year includes an increase, and it is believed that this should be further increased in the appropriations for the fiscal year 1918, in order that third-class postmasters may be relieved, as far as practicable, of the necessity of paying for clerical assistance out of their personal funds.

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The law formerly required that a post office should not be advanced from the fourth to the third class unless the postmaster's compensation amounted to at least $250 for each of four consecutive quarters, with gross postal receipts of at least $1,900 during the year. In the case of many post offices, especially those located in summer and winter resorts, where the postal receipts fall off materially during one or two quarters of the year, the result of this legislative restriction was to prevent year after year the advancement of post offices at which the annual receipts fully justified third-class status. This restriction has been removed, on the recommendation of the department, by legislation contained in the act of May 18, 1916, as amended by the postal service act of July 28, 1916, by the terms of which a fourth-class office is advanced to the Presidential grade whenever the gross postal receipts for a period of four consecutive quarters shall have amounted to as much as $1,900, and provided the compensation of the postmaster has amounted to as much as $1,000, based on the cancellations of the office. The advancement of a fourth-class office is thus no longer dependent on the business done during any one fiscal quarter, but is based on the business of the office for an entire year.

For a number of years past the annual readjustment of the salaries of Presidential postmasters on July 1, has been an administrative burden to this bureau. The readjustments, under the law, were based on the audited gross receipts of the post offices for the adjustment year ended March 31. The auditor's report of these receipts was received so short a time before July 1, the date of readjustment, that it became more and more difficult to complete the readjustments on time. This difficulty is now overcome by the inclusion, in the postal appropriation bill for 1917, at the suggestion of the department, of a provision by which the readjustments will, in the future, be based on the gross receipts for the four quarters ending December 31, instead of March 31.

FOURTH CLASS.

The Executive order of November 30, 1908, extended the scope of the civil-service law to all fourth-class postmasterships in the States north of the Ohio and east of the Mississippi, and accorded classified civil-service status to the incumbents of those positions. The same action was taken, by the Executive order of October 15, 1912, with respect to all other fourth-class postmasterships, excepting only those in Alaska, Guam, Hawaii, Porto Rico, and Samoa. In this manner a large number of persons were classified as fourth-class postmasters without being required to submit to any test of capacity or fitness for the positions held by them. Accordingly, on May 7, 1913, an Executive order was issued, reading in part as follows:

> No person occupying the position of postmaster of the fourth class shall be given a competitive classified status under the provisions of said orders unless he has been appointed as a result of open competitive examination, or under the regulations of November 25, 1912, or of January 20, 1909, or until he is so appointed.

It was found that approximately 5,000 fourth-class postmasters had been appointed to vacancies as a result of open competitive examinations under the civil-service regulations referred to, and no question has been raised as to the classified status of these persons.

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All other fourth-class postmasters have been required to submit to tests of their capacity and fitness in open competitive examinations conducted under the authority of the Civil Service Commission and in accordance with the President's order of May 7, 1913. This work, which was undertaken in 1913, has continued into the fiscal year 1916, but is now completed. Fourth-class postmasters now in office have been appointed under procedure in strict accordance with the spirit and letter of the civil-service law.

In accordance with the usual practice of the Civil Service Commission, the department has been furnished, for these appointments, with the names of the three eligibles standing highest on the list. The appointing officer has the right, without question, to select any one of the three eligibles certified. In accordance with the purpose of the President when he issued the Executive order of May 7, 1913, the Postmaster General decided, in the interest of efficiency and the promotion of true civil-service principles, to give preference to the eligibles in the order of their civil-service ratings. To this end the following instruction was issued by him to this bureau:

> In selecting persons from the eligible registers furnished by the Civil Service Commission for appointment as fourth-class postmasters, it is my desire that the persons with the highest rating be chosen, unless good and valid reasons are submitted to the Department showing that this would not be in the best interest of the service. If reasons are submitted sufficient to make the selection of the first eligible inadvisable, then it is my desire that the person with the next highest rating be chosen, unless good and valid reasons are submitted to show the inadvisability of his appointment. In such case the third eligible may be selected.
>
> In no case should the second or third eligible be chosen unless the appointment of one of the highest standing eligibles has been shown to be inadvisable from the standpoint of the greatest efficiency in the Postal Service.
>
> In reaching conclusions as to the most desirable appointments an endeavor should be made to select persons whose business and temperamental equipment is likely to reflect credit on the Postal Service.

These instructions were scrupulously adhered to. More than 32,000, or 89.5 per cent of these cases were closed by the appointment of the persons whose names appeared first on the eligible lists furnished the department. In 8 per cent of the cases the eligible with the second highest civil-service rating was selected; and in only 2.5 per cent was the third eligible preferred to the first and second.

Of the postmasters classified by President Taft's order of October 15, 1912, two-thirds were retained as the result of the civil-service test imposed on them. The places of the remaining third have been taken by candidates who have demonstrated their superior fitness and capacity.

The work of appointing and classifying all fourth-class postmasters under the order of May 7, 1913, is now completed and it may be said that no appointment of a fourth-class postmaster has been made except after a test, under civil-service procedure, of the qualifications and efficiency of all applicants for the position.

Consistently with the practice of appointing fourth-class postmasters with an eye solely to the efficiency of the service, as well as with the recommendation that postmasters at the larger post offices be appointed under civil-service procedure, classified postmasters at post offices advanced from the fourth class to the Presidential grade have been retained in office, provided their services have been satisfactory to the department and to the patrons.

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DIVISION OF DEAD LETTERS.

The receipts of letters and parcels in this division for the last fiscal year amounted to 10,839,890, showing a small net increase over the preceding year. Undeliverable parcels received at the post offices at the headquarters of the 15 divisions of the Railway Mail Service, including Washington, D. C., where matter of this character is treated by the Division of Dead Letters, totaled 395,161, as against 312,411 for the year before.

The net revenues of the office, derived from the sale of undeliverable articles of merchandise in the division and by postmasters at headquarters of the Railway Mail Service, together with currency found loose in the mails and removed from letters found to be undeliverable after careful examination, as well as postage payments and unclaimed stamps, aggregated $53,665.69, an increase of $8,524.96. The regulation requiring the collection of 1 cent each on advertised letters returned from the Division of Dead Letters has been in force six months, resulting in the collection of $11,000, making a total net revenue for the year of $64,665.69. The estimated revenue under present conditions for 12 months would be approximately $75,000, which would make the division self-sustaining.

Checks, drafts, money orders, and other valuable papers of the face value of $2,303,119.56 were found in undelivered letters, practically all of which were restored to the owners.

In accordance with the request of the department, a provision was included in the postal appropriation act approved July 28, 1916, amending section 3938, Revised Statutes, reducing the limit of time that letters containing valuable inclosures shall be held awaiting reclamation from four years to one year. This will prevent the unnecessary accumulation of this matter.

It has been decided to discontinue the final disposition of dead parcels by the post offices at Pittsburgh and Cleveland. Such matter formerly going to Pittsburgh will be sent to New York City, while that in Ohio formerly going to Cleveland will be sent to Cincinnati, and matter from the southern peninsula of Michigan will go to Chicago.

On account of the large growth in the parcel-post business, experience has demonstrated that the accumulation of this matter at the division headquarters of the Railway Mail Service has become so large as to make it difficult to find space for its accommodation. The regulations provide, in the case of insured parcels, that claims for indemnity must be filed within six months, and it has been found, in the Division of Dead Letters, that there is very little call for lost parcels after the lapse of this space of time. Accordingly, an order will be issued amending the regulations so as to reduce the period for holding such matter prior to sale from 12 months to 6 months.

LEGISLATION FOR ADDITIONAL PROMOTIONS.

At the suggestion of the department Congress included in the postal appropriation bill for the fiscal year ending June 30, 1917, several important provisions in the interest of the employees and the service.

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Special recognition of faithful and efficient service performed in the highest carrier and clerical grades is authorized in a provision for promoting 5 per cent of all clerks and carriers in the fifth grade at second-class post offices to the sixth grade; 5 per cent of all clerks in the sixth grade at first-class post office to the rank of "special clerk" at $1,300; and 5 per cent of all "special clerks" at $1,300 to "special clerks" at $1,400.

"Special clerks" have received further consideration by being accorded the benefits of the eight-hour-in-ten law, including payment for any service rendered by them in excess of eight hours daily. The law providing compensation for employees injured in line of duty has been extended to include the "special clerks."

REORGANIZATION OF THE BUREAU.

As mentioned in the preceding annual report, the agencies for the transfer, delivery, and collection of mail in cities, formerly controlled partly by the bureau of the Second Assistant and partly by this bureau, came under the exclusive jurisdiction of the bureau of the First Assistant, effective July 1, 1916, by order of the Postmaster General.

On the same date the Division of Salaries and Allowances and the Division of City Delivery, both of this bureau, were consolidated as one division, to be known as the Division of Post Office Service. This change is directed by a provision contained in the legislative, executive, and judicial appropriation act for the fiscal year ending June 30, 1917. The consolidation of these divisions will be in the interest of logical organization and effective administration. Both of the discontinued divisions initiated and recorded the action of the bureau in granting allowances and making contracts for the service at post offices; and in appointing, promoting, transferring, disciplining, and removing employees at the same post offices. Neither division was in a position to consider any post office as a unit, and the effort to coordinate their activities had resulted in placing some of the records of one division in the files of the other division and in burdening the First Assistant with an undue amount of detailed review in the handling of cases.

The new division (Division of Post Office Service) embraces the following subject matter: The adjustment of postmasters' salaries; the appointment and mutation in office of all employees at post offices, except rural carriers; the granting of allowances to postmasters for personal services, vehicle hire, and transportation used in handling, delivering, collecting, and dispatching mail in cities; and the making of contracts for these purposes and for leasing post-office quarters.

FORECASTED IMPROVEMENTS.

The experience gained in the administration of the Post Office Service during the past four years has thrown light on the developments which may be expected and desired in this service in the near future. The successful record already established by the department in the operation of Government-owned automobiles suggests that the bureau should hold itself in readiness for rapid expan-

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sion in the ownership of all facilities for carrying mail, and eventually for the Government ownership of telegraph and telephone facilities. The ownership of equipment and improved methods of control will be accompanied by measures looking to the increased efficiency of the personnel. As the service increases in size and complexity, it will depend to a greater and still greater extent on the proper organization and management of the working force. Two reforms are of paramount importance—retirement of superannuated employees and opportunity for transfer and promotion through all grades of the Postal Service. The subject of superannuation in the Post Office Service has been discussed in previous reports. The administration of the service during the past year strengthens the conviction that the retention of employees in positions of responsibility after they have passed the point where they are no longer capable of performing satisfactory service is a constant incubus which should be removed by legislative action. The restrictions which are placed about the advancement of post-office employees should be removed by the civil-service classification of all postmasters, by recruiting the clerical and administrative force of the department from the post offices, by providing for the promotion or transfer of the officers and employees of one post office to any other post office, and for the interchange of positions between the Post Office Service and the Railway Mail Service. In other words, conditions should be brought about under which it will be possible for the lowest paid postal employee anywhere in the country to gain experience of all kinds in the great postal workshops and to look forward to the possibility of becoming postmaster at the largest office. These measures, being in the interest of the employees as well as of the Government, are to be desired for the direct and important benefits that will flow from them, and also for the reason that the best results in this great cooperative endeavor can only be secured by such fair and generous treatment of the working force as will insure their loyalty and ambitious effort.

ACKNOWLEDGMENTS.

This report reviews the operations of the bureau since the advent of the present administration in 1913, setting forth in a general way the difficulties and problems encountered and the constructive work which, in the past year, has enabled the service to realize fully the advantages of an effective organization of the department and field service in a period of expansion and prosperity. The report would be incomplete without a statement in appreciation of those whose loyalty and effort has made this possible. Postmasters, supervisory officers in post offices, clerks, and carriers are entitled to high praise for their loyal cooperation and for the high standard of efficiency which has been attained at practically all post offices. The bureau also expresses its appreciation of the high character of assistance accorded by the post-office inspectors, who have represented the department in the reorganization of the post offices, and in the investigations necessary for the orderly conduct and extension of the service.

In concluding this report, which marks the termination of my labors in connection with the Postal Service, I wish to express to the officers and employees of this bureau my sincere conviction that no more unselfish and patriotic service could have been rendered by

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them to a bureau head and hence to their country than that which has characterized their loyal cooperation with me during the last four years in the effort to bring the Post Office Service to that degree of efficiency required and demanded by the American people.

Respectfully,

DANIEL C. ROPER,
First Assistant Postmaster General.

Hon. A. S. BURLESON,
Postmaster General.

REPORT OF THE SECOND ASSISTANT POSTMASTER GENERAL.

POST OFFICE DEPARTMENT,
OFFICE OF SECOND ASSISTANT POSTMASTER GENERAL,
Washington, October 12, 1916.

SIR: The work of this bureau relates to the transportation of mails between domestic post offices and with foreign countries, involving railroad, electric car, pneumatic tubes, steamboat, and motor and horse-drawn vehicle, and experimental aeroplane transportation.

During the fiscal year ended June 30, 1916, the task was accomplished through the medium of 3,479 railroad mail routes, aggregating 502,937,359.43 miles of service, involving the employment on June 30, 1916, of 18,797 railway postal clerks and supervisories, whose salaries aggregated $26,083,700; 571 electric car routes, with an aggregate of 12,869,216 miles of service, at an annual rate of expenditure of $602,423.63; 260 domestic steamboat and power boat routes, aggregating 5,470,272.24 miles of service, costing $937,893.54; 481,307 miles of foreign steamboat routes (not including pound-rate routes) and costing in the aggregate $1,090,918; 65 motor and horse-drawn vehicles, and sled routes in Alaska, aggregating 338,492 miles of service, and costing $282,909.28; 8,027 mail messenger routes, costing $2,092,044.36; 264 screen wagon contract routes, costing $2,185,144.61; 2,622,811 miles of Government-owned automobile screen wagon, collection and delivery service, costing, including equipment, $706,551.67; 6 pneumatic-tube routes, costing $961,839.29; the total number of persons employed in the activities of this bureau was 19,803 and the cost of operation of the bureau during the fiscal year aggregated $102,189,229.97.

EXPANSION OF SERVICE.

The expansion and improvement of the mail transportation service is reflected in part by an increase over the previous year—notwithstanding extensive economies—of eight-tenths per cent in the annual miles of travel, and 5.98 per cent in the annual rate of expenditure for railroad service; 1.13 per cent increase in the cost of personnel in the Railway Mail Service; 5.47 per cent increase in the cost of handling, and a 17.59 per cent increase in the weight of foreign mails. Increases corresponding with this expansion of the mail service in 1916, over 1915, are recorded in the screen-wagon and mail-messenger services which, with the end of this fiscal year, are trans-

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ferred to the jurisdiction of the First Assistant Postmaster General. A decrease in the mileage and cost of the electric car service is noted, due to the absorption of a large part of this service by Government-owned automobiles.

IMPRACTICAL PRACTICES DISCARDED.

As might be expected of a vast institution which originated on a very small scale and developed rapidly and hugely upon the same general lines, the operations of the bureau of the Second Assistant in course of time became barnacled with many sacred but impractical precedents and practices—not only as to its office methods but in the administration of its personnel and even in its contractual relations with the great carriers of the country. A large part of the work during the past fiscal year has been devoted to freeing the bureau from antiquated and impractical methods and policies, with the view to diverting unproductive energies to more fruitful fields of endeavor.

SUPPOSED RIGHTS OF RAILROADS TO MAILS.

One of the myths that have grown up in the service is the theory that a railway carrier, once having obtained a contract for carrying mails, has somehow acquired a proprietary interest or right in those mails as affecting any proposal for better service that might be made by some competing railroad line. As a result, if a competing line, in order to obtain a contract for carrying the mail, or a part of the mail, held by another line offered to establish improved service, usually in the way of faster schedules, the line carrying the mail would be given an opportunity to say whether it would meet the conditions of the competitor. If the carrier-contractor agreed to meet the terms offered by its competitor the proposal of the competitor was rejected. In some very notable cases the competitor withdrew either the established or proposed new train service which was installed, or intended to be furnished, with the hope of getting the mail, whereupon the line holding the mail, having no new or improved schedule to meet, continued to operate under the old conditions, with the result that the public lost an opportunity for improved mail facilities, and an enterprising railroad was discouraged by failure to receive a profitable mail contract. This long-standing policy has been reversed, and all superintendents of Railway Mail Service have been informed, so that they in turn may inform the railroads, that any line offering a mail schedule sufficiently valuable to warrant a change will receive the mail, regardless of any belated promise by the railroad holding the mail to meet the improved service offered by its competitor.

ABUSE OF CIVIL SERVICE PRINCIPLE.

Another myth in the service of this bureau is that relating to certain supposititious seniority rights on the part of railway postal clerks. The belief was that, "other things being equal," seniority in grade prevailed in the matter of promotions. The theory was that under a fairly well fixed rule all seniority promotions would go to men in a manner that did not involve the judgment or favoritism of supervisory officials. The tremendous preponderance of superintendents, assistant

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superintendents, chief clerks, assistant chief clerks, and clerks in charge of a certain political party, to say nothing of other field and departmental employees, which has grown up under previous national administrations, can not rationally be ascribed to accident, but rather indicates that in a great number of instances "other conditions" were conveniently not equal. It is plain that a hard, fast, and undeviating rule of seniority as the sole standard for promotion would be unfair, and discouraging to able and efficient clerks, while a flexible rule of seniority, based on "other conditions being equal," allows that limitless latitude for political reward that has, under long years of control by one political party, resulted in manning the service with close to 100 per cent superintendents and chief clerks affiliated with that particular party. No single standard for determining promotions to executive responsibility can be perfect. The best single guide that we have, free from favoritism or political "pull," is meritorious service as ascertained by some rational efficiency system, in which a clerk is rated according to his good or poor work. Such a system will sometimes place in an executive position a man of high merit as a worker but poor qualifications as a supervisor. It would seem that the most satisfactory solution of this problem would be to make promotions solely according to the efficiency record of the clerk; that promotions be probationary, and become permanent only upon the establishment of the necessary executive ability of the employee. This bureau is striving toward that end and for that purpose has under consideration the improvement of the existing efficiency rating system that it may more fairly and accurately reflect the satisfactory or unsatisfactory performance of each clerk.

WRONGS TO SUBSTITUTES RIGHTED.

One of the worst and most unjust practices that has grown up in this bureau relates to the employment of substitutes for railway post office clerks on "personal leave." Under the law when personal leave is granted to a clerk, a substitute is employed at the maximum legal rate of approximately $2.50 per day, while the clerk on personal leave receives the difference between his own salary and the cost to the Government of the substitute. Thus, an $1,800 clerk is entitled to pay at the rate of approximately $5 per day, and while on personal leave, doing no work, he actually receives $2.50, the substitute receiving the other $2.50.

Now, it happens that clerks on trains usually are on duty more than eight consecutive hours and are therefore entitled to a "lay off" by reason of their overtime and for so-called rest period. The almost unbelievable practice has long existed in the Railway Mail Service of working the substitute at the rate of $2.50 per calendar day and paying to the regular postal clerk, who is on personal leave, the cash equivalent of the lay-off period earned by the overtime of the substitute clerk. This injustice has embittered many a substitute patiently availing himself of the little work that may fall in his way until he can be reached for regular appointment. This practice has been stopped by an order giving to the substitute pay for the lay-off period which his work has earned for him and which was formerly given to the clerk for whom he performed substitute service.

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EXCESSIVELY LONG RUNS TO BE REDUCED.

The attention of the bureau has been called by railway postal clerks and others to what appears to be a deplorable condition in the service as affecting certain railway postal routes. It develops that men are on continuous duty on some lines in excess of 30 hours on trains, while instances of 12 to 20 hours continuous employment on running trains are not infrequent. This bureau was impressed with the inhumanity of expecting clerks to take on the labor and responsibility of handling the mails over such long periods while trains are in motion, and investigations are under way in the interest of the physical and general welfare of the clerks to cut these long runs to such proportions as will give them reasonable continuous hours of work. Similarly the attention of the bureau has been called to instances where men make two or more hard round-trip runs before they are given the lay off to which they are entitled. It has been represented that such hard work is more than the human body and mind can endure. These and other similar unfortunate conditions in the service are receiving careful attention, and an investigation is under way to determine the feasibility of cutting some of these runs and also of giving clerks, immediately after their long and arduous runs, the rest period to which they are justly entitled, instead of letting them repeat the strenuous trips and bunch their lay-off periods.

ARCHAIC METHODS AND CIRCUMLOCUTION ELIMINATED.

An investigation into certain archaic methods in the departmental and field services of this bureau has disclosed a great activity among office clerks, spinning out red tape and endless-chain communications and investigations that, in a distressingly large number of instances, ended where they began, brought relief to no one, remedied nothing, exasperated the complaining public, and resulted in unnecessarily increasing the pay rolls. The recommendations of the committee in the main have been made effective with the expected result that a large number of clerks will hereafter be diverted from these strenuous but unfruitful tasks of circumlocution to more practical and profitable operations.

While this work of administrative house cleaning has necessarily occupied a great deal of attention, much work of a constructive nature on the expansion and betterment of the actual transportation service has been accomplished.

GOVERNMENT-OWNED MOTOR SERVICE.

The most far-reaching work of this character undertaken by the bureau during the fiscal year was the inauguration of combined screen-wagon, collection and delivery service with Government-owned automobiles. The department was threatened with the danger of a screen-wagon monopoly through the operations of a group of men interested in or managing the large screen-wagon contract in New York City. While this group was reaching out to establish a chain of screen-wagon contracts under their control in the larger cities of the country, the post-office inspectors began an investigation of cases of bribery

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and corruption in connection with the New York screen-wagon service, which resulted in sending three persons to penitentiary, the removal from the Postal Service and reduction in grades of several employees, and in assessing a fine of $50,000 by this bureau against the contracting corporation in New York City.

These developments impressed upon the department the desirability of extending the Government-owned screen wagon and collection and delivery service, then successfully tried out on a small scale in Washington, D. C., to a number of other cities. The Government-owned service is now installed, and in successful operation, in Chicago, Detroit, St. Louis, Indianapolis, Washington, and Philadelphia. The Government-owned equipment at the close of the fiscal year consisted of 276 automobile trucks, the operating force aggregating 328 employees. The annual rate of operating expenses at the end of the fiscal year, including depreciation of equipment and interest on the investment, was $737,957.45, and the amount of the contract and other services taken over by the Government-owned machines was at an annual rate of $1,081,000.70. In addition to the net saving at the rate of $262,124.25 per annum and the improvement of automobile over the former horse-drawn service, it was possible to provide additional service in Detroit, Philadelphia, and St. Louis, aggregating 294,102 miles per annum.

UNNECESSARY TERMINALS DISCONTINUED.

Another important work undertaken by the bureau was the elimination of unnecessary terminal railway post offices. The work of the eliminated terminals was taken over in part by other terminals, by city post offices, and by transfer clerks. The total number of 25 terminals were discontinued, with an indicated saving to the Government of $357,173.18.

POST OFFICES TO RENDER MORE AID.

Hand in hand with, and to complete this work, were the reforms brought about through the investigation by another committee. The purpose of this committee was to devise means to more fully utilize the facilities afforded by post offices and terminal railway post offices in an economical distribution and handling of transit mail. As a result of these activities the post offices and terminals are now doing more fully their proper share of the distribution of the mails, resulting in reducing costly car space and costly distribution on trains.

SHIPMENTS OF LOOSE PARCEL POST.

The growth of the mails, and especially the development of the parcel post, has rendered increasingly difficult the problem of providing equipment during rush seasons. With this in mind the bureau has been making experiments in transporting the larger packages outside of sacks. Trial shipments have been made from New York to Atlanta, New York to St. Louis, New York to Kansas City, and Kansas City to Los Angeles, while between New York and Washing-

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ton this method has been regularly employed for several months, with a consequent monthly saving of about 9,000 sacks. The results have more than justified expectations, and it is apparent that where conditions permit outside dispatch there is not only a large saving in equipment, but there is a more satisfactory handling and less likelihood of damage and loss.

IMPROVEMENTS IN HANDLING PARCEL POST.

There is a gratifying improvement in the matter of handling parcel post. Representatives of the bureau make periodical inspections of parcel-post matter in transit, remedying irregularities and reporting for disciplinary action employees of the Post Office Department, the railroads, and other contractors guilty of careless or rough handling of mail matter. A study of 4,219 reports received at the headquarters of the various Railway Mail Service Divisions during a 30-day investigation discloses that in 52.31 per cent of the cases damage was caused by improper preparation of the parcels by senders. The result of this investigation may be summarized as follows:

	Total number.	Per cent.
Cases of damage caused by improper preparation by sender	2,207	52.31
Cases of damage caused by improper handling by postmaster	107	2.53
Cases of damage caused by improper handling by Railway Mail Service employees	43	1.02
Cases of damage caused by improper handling by railroad employees	54	1.28
Cases of damage from miscellaneous causes	188	4.46
Cases of damage from unknown causes	1,620	38.40
	4,219	100.00
Cases of damage to—		
Eggs	355	8.41
Butter	99	2.35
Hats	119	2.82
Paint	20	.47
Powders	59	1.40
Preserves	129	3.06
Foodstuffs	575	13.63
Merchandise	1,002	23.75
China and glass	368	8.72
Liquids	925	21.92
Fruit	194	4.60
Poultry	51	1.21
Flowers	53	1.26
Other articles	270	6.40
	4,219	100.00
Damage cases insured	137	3.25
Damage cases on star routes	304	7.21

FOUNDATION FOR AEROPLANE EXPERIMENTS.

The remarkable development of the aeroplane as an instrument of warfare has emphasized the purpose of the department to utilize it as an agency for the extension of mail service wherever practicable. Advertisements were issued during the year inviting bids on one route in Massachusetts and several in Alaska. No practical results were obtained through these advertisements, but the conferences with aeronautic experts has laid the foundation for effective experimental work during the coming year.

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FASTER OCEAN SERVICE.

It has come to the attention of the department that through advances in the science of shipbuilding which have taken place in recent years, a notable increase in the speed of carriage of trans-Atlantic mails is practicable. Larger and more powerful steamers can now be built which could carry the mail at a speed of 28 knots an hour, as compared with the 20 knots at present secured by contract. Such a development would give this country mail steamers superior to any now in existence, and their advent under the American flag would provide an important national asset. I recommend that this more efficient service be secured to the Government if it can be done upon fair terms.

EXPANSION OF FOREIGN PARCEL POST.

Substantial progress has been made in the expansion of the foreign parcel-post facilities. Two important parcel-post treaties were negotiated—one with Argentina and one with China—making 53 countries and colonies with which we have such treaties. Improvement in the international service and the removal of hindrances to its growth have received special attention. Already the weight limit on parcel post between the United States and Panama and Ecuador has been increased from 11 to 20 pounds. Negotiations are under way looking to greater security to foreign parcel post, and indemnity for losses. Special study is being made of the parcel-post relations between Central and South American countries and Europe. Austria, Belgium, Hungary, Germany, and the Netherlands, being unable to avail themselves of parcel-post arrangements with the United States on account of the war, it was found necessary to suspend parcel-post operations with those countries. Notwithstanding these interruptions to the service, the weight of parcel-post mails dispatched from the United States to foreign countries increased 87.25 per cent over the weight dispatched during the preceding fiscal year and the weight of parcel post received from foreign countries increased 37.86 per cent.

MAIL PAY ON SPACE BASIS.

The long and painstaking work of the department during the fiscal year with relation to railway mail pay has since been rewarded by the passage and approval of an act containing the legislation in relation to the manner of pay of railroads and transportation of the mails so earnestly advocated by the Post Office Department. Under this act the Postmaster General is directed to readjust the compensation to be paid to railroad companies, as soon as practicable, for the transportation and handling of the mails and furnishing facilities and service in connection therewith. The modifications in the law over what both the railroads and the Post Office Department originally suggested is that the Interstate Commerce Commission, instead of Congress, shall finally establish the rate and method of determining the pay of the railroads. Pending this determination by the Interstate Commerce Commission, the Postmaster General, with the consent of the Interstate Commerce Commission, is authorized to place upon the space system of pay such routes or systems, and to the extent that he may find it practicable and necessary, in order to properly present to the

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commission the whole subject of railway mail transportation. The consent of the commission has been given to the placing of perhaps more than 90 per cent of such mail transportation on a space basis of pay.

After conference with the field superintendents of Railway Mail Service, and with a committee of mail traffic managers representing the railroads, this bureau worked out a plan for the installation of the space basis on November 1, 1916, on the routes authorized by the Interstate Commerce Commission. The rules for the operation of the service on the space basis are founded on the principle that the department will pay for only such service as is actually rendered by the railroads, and will not ask the railroads to perform service without compensation, the adequacy of which is to be determined by the Interstate Commerce Commission. Scrupulous care was taken to conform, as far as consistent with efficient service, the transportation of the mails to the transportation facilities and methods of the railroads. In the making of such economies as the space basis will permit no curtailment will be authorized that might tend to deteriorate the Postal Service.

The activities of the various divisions of this bureau can be briefly summarized as follows:

DIVISION OF RAILWAY ADJUSTMENTS.

RAILROAD TRANSPORTATION.

Service and expenditure.

Number of routes		3,479
Length of routes	miles	234,175.13
Annual travel	do	502,937,359.43
Annual rate of expenditure		$57,148,381.32
Average rate of cost per mile of length		$244.04
Average rate of cost per mile traveled	cents	11.36
Average number of trips per week		20.65

Comparison with the previous year shows:

		Per cent.
Decrease in number of routes		3, or 0.086
Increase in length of routes	miles	557.19, or 0.238
Increase in annual travel	do	4,058,554.30, or 0.813
Increase in annual rate of expenditure		$3,228,419.12, or 5.987
Increase in rate of cost per mile of length		$13.24, or 5.736
Increase in average rate of cost per mile traveled	cents	0.56, or 5.185
Increase in average number of trips per week		0.12, or 0.584

There was no unadjusted service on June 30, 1916, with the exception of three small routes. The appropriation for the fiscal year of 1916, as provided by the joint resolution of March 4, 1915, making available for the fiscal year of 1916 the amounts of appropriations for the fiscal year of 1915 was $56,188,000; a deficiency appropriation of $1,729,000 was carried in the urgent deficiency act of February 28, 1916; and an additional appropriation of $255,000 in the general deficiency act of September 8, 1916, making a total of $58,172,000 available for the fiscal year of 1916. Of this sum the auditor reports the amount expended under accounts stated to September 8, 1916, as $57,794,838.57, leaving an unexpended balance of $377,161.43, out of which unsettled accounts and allowances in accordance with the act of July 28, 1916, must be paid.

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The annual rate of expenditure was:

June 30, 1916	$57,148,381.32
July 1, 1916	[1] 58,268,525.79
Sept. 30, 1916	[1] 58,284 513.93

These amounts do not include estimated expenditures for the transportation of periodical mails or for mail weighings.

Quadrennial readjustment.—During the fiscal year the mails were weighed on the railroad routes in the second section embracing the States of North Carolina, South Carolina, Georgia, Florida, Alabama, Kentucky, Mississippi, and Tennessee, and the island of Porto Rico. The annual rate of expenditure for railroad transportation in this section on June 30, 1916, was $5,858,009.37. The mails on all the routes covered by this readjustment have been weighed and the average daily weights computed, with the exception of 20 delayed for further information. The increase in the annual rate of compensation on the routes readjusted is found to be $1,121,422.63, or 19.25 per cent. Estimating the increase for the unadjusted service at the same rate makes the total increase in the annual rate $1,127,812.15.

The increase in pay resulting from the last preceding readjustment in this section in 1912 was 9.56 per cent. The readjustment just completed is the third readjustment in this section under the application of the Postmaster General's order of June 7, 1907, No. 412, requiring the use of the whole number of days in the weighing period as a divisor in obtaining the average daily weight, and since the withdrawal of empty equipment and supplies from the mails and the increase in annual rate under this readjustment is $1,127,812.15, as stated above.

Authority for substitution of weights of mails.—Reference has been made in previous reports to the recommendation of the department to Congress for legislation to enable it, in cases where by reason of floods or other causes there have been interruptions in or total cessation of service on railroad routes upon which the mails were being weighed, to substitute estimated weights for the part of the weighing period when weights are not normal or where none have been taken, such estimates to be based upon the average weights for the period during which the weights are normal. The desired legislation was embraced in House bill 562, to amend the act approved June 25, 1910, authorizing the postal saving system, and for other purposes, which passed Congress and became a law on May 18, 1916.

Under authority of the act, readjustments of compensation have been made on a number of routes in the first section on which the weights were shown to have been affected by the floods in the spring of 1913.

Readjustment of compensation authorized by Congress on account of changes in rates of postage on parcel post and increase in the weight limit thereof.—Previous annual reports have referred to the recommendations of the department to Congress for authority to make allowances of additional compensation on railroad routes from August 15, 1913, and January 1, 1914, on account of additional mails carried as a result of the orders of the Postmaster General respecting rates upon and limits of weight of parcel-post packages effective on those dates. The Post Office appropriation act for the fiscal year 1917, which became a law on July 28, 1916, contained the department's

[1] Includes annual rate of expenditure of previous adjustment on all unadjusted routes.

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suggested provisions, and the necessary deficiency appropriations having been made by Congress in the general deficiency act of September 8, 1916, allowances of additional compensation will be made.

Readjustments for diversions of mails.—Under the authority provided by section 4 of the act of August 24, 1912, for making readjustments of compensation on routes under certain conditions where, after a weighing, mails are diverted therefrom or thereto, special weighings were conducted and readjustments made in a number of cases during the year.

In the administration of this law cases have arisen in which it would have been equitable and desirable to make readjustments of pay on the routes involved but which the department was unable to authorize because of the limitation in the law that the diverted mails shall equal at least 10 per cent of the average daily weight of mails on any of the routes affected.

The department's recommendation to Congress for legislation removing this limitation was embraced as a section of House bill 562, "An act to amend the act approved June twenty-fifth, nineteen hundred and ten, authorizing the postal savings system, and for other purposes," which became law on May 18, 1916.

The removal of the limitation places the department in a position to make readjustments of compensation as between railroad companies in any case where mails are diverted, without regard to quantity, if such action be found practicable and advisable.

Transportation of certain periodical mail matter by freight.—The plan of transporting certain periodical mail matter in fast-freight trains, which was placed in operation in the third contract section September 1, 1911, and in the second contract section July 1, 1912, was continued during the fiscal year. Congress provided, by the appropriation act of August 24, 1912, that the department shall not extend or enlarge the policy of sending second-class matter by freight trains. In order that the plan, which has resulted in a large economy, may be extended to cover the other sections of the country where practicable, and further economies accomplished, the department recommended to Congress the removal of this prohibition. Legislation to accomplish this was embraced in section 2 of the Post Office appropriation act for the fiscal year of 1917, which became a law on July 28, 1916.

It is contemplated to inaugurate such additional shipments as may be found to be practicable and economical in the first and fourth contract sections.

The method by which adjustments are made and compensation paid for transportation of this kind has been fully explained in previous annual reports. All accounts for the fiscal year 1916 have been settled, and a tabulation of the business shows that 5,167 carloads of periodical mail matter were transported in fast-freight trains during the year, carrying 138,130,147 pounds. The cost of the freight transportation, with cartage and incidental charges, was $713,367.55. Had this mail been continued in the regular mail trains the cost of its transportation would have been $2,149,505.45. The saving to the Government by reason of the shipments by fast freight for the year was $1,436,137.90.

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Compared with the year 1915 the operation of this class of service showed an increase of 324 cars and 10,925,009 pounds handled, $62,000.05 in cost of transportation with incidental charges, and in the saving of $15,104.94.

ECONOMY IN READJUSTMENTS.

The policy of equalizing the rates of pay for the transportation of mail by railroad routes on the basis of the lowest cost, where the department has the choice of dispatching mails by competing lines to the same destination with equal advantage, referred to in previous reports, has been followed when practicable in the readjustment of compensation upon the weighing of mails in the second section. Under this policy the following agreements have been entered into between the department and the railroad companies affected.

The Atlantic Coast Line Railroad Co. agreed to equalize the cost of the carriage of all mail transported over its line between Washington, D. C., and Jacksonville, Fla., which might have been sent by the cheaper line of the Seaboard Air Line Railway Co., without detriment to the service. This is a renewal and extension of the agreement first entered into in 1908 and referred to in the annual reports of that year and of 1912.

The Southern Railway Co., the Western Railway of Alabama, and the Louisville & Nashville R. R. Co. agreed to carry certain mails between Lynchburg, Va., and New Orleans, La., at the same rate that would have been paid for their transportation over the cheaper line of the Norfolk & Western Ry. Co., the Southern Ry. Co., the Alabama Great Southern Ry. Co., and the New Orleans & Northeastern Ry. Co. An agreement covering the cost of the carriage of the mails from Lynchburg to New Orleans was first entered into in 1912. The new agreement also includes the northbound movement of the mails.

The Central of Georgia Railway Co., the Georgia Southern & Florida Railway Co., and the Atlantic Coast Line Railroad Co. agreed to carry certain mails from Atlanta, Ga., to Jacksonville, Fla., at the same rate that would have been paid for their transportation over the cheaper line of the Southern Railway Co.

The Seaboard Air Line Railway agreed to carry certain mails from Washington, D. C., to Atlanta, Ga., at the same rate that would have been paid for their transportation over the cheaper line of the Southern Railway Co.

The department has authority under the act of August 24, 1912, as amended by the act of May 18, 1916 (sec. 1321, Postal Laws and Regulations), to readjust the compensation on the railroad routes affected, when, after a weighing of the mails for the purpose of readjusting the compensation for their transportation, mails are diverted therefrom or thereto. During the past year reports were made to the department that, on account of schedule changes, or for other reasons, mails which were then being carried on longer or otherwise more expensive routes, on which the pay had been theretofore readjusted for quadrennial terms, could be diverted to less expensive routes without detriment to the service. Before ordering a diversion of the mails to the cheaper lines and readjustment of compensation under the authority referred to above, the department took up with the carrying companies the question whether, if the mails were permitted to

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remain on their lines, they would be willing to agree to a reduction in the compensation allowed on their routes, for the remainder of the quadrennial terms, of an amount equal to that which could be saved by a diversion of the mails to the cheaper line and a readjustment of pay on the routes affected. These agreements are as follows:

The Chicago, Rock Island & Pacific Railway Co., the El Paso & Southwestern Railway Co., and the Southern Pacific Co. agreed to meet the cheaper rate applicable to the lines of the Atchison, Topeka & Santa Fe Railway Co. for the transportation of certain mails from Kansas City to Los Angeles carried by Rock Island train 3 and its connections but which could be forwarded by Santa Fe train 7 and its connections.

The Wabash Railroad Co. agreed to meet the cheaper rate applicable to the lines of the Atchison, Topeka & Santa Fe and the New York Central for the transportation of certain mails from Kansas City, Mo., to Butler, Ind., carried by Wabash train 28 but which could be forwarded by Santa Fe train 2 and its connections.

Legislation making it unlawful for a railroad to refuse to carry mails.—The Post Office appropriation act for the fiscal year of 1917, which became a law on July 28, 1916, contained a provision making it unlawful for any railroad to refuse to perform mail service at the rates and methods of compensation provided by law, when so required by the Postmaster General, and fixing a penalty of $1,000 a day for such refusal.

Compensation of railroads for carrying mails ascertained by the application of order No. 412; continued objection thereto by railroad companies; and the claimant's appeal to the Supreme Court of the United States from the decision of the Court of Claims sustaining the legality of the order.—The order prescribing the method of obtaining the average daily weight of mails carried, upon which the compensation paid to railroads for transporting the mails has been heretofore based, was first applied in the readjustment of 1907, and has since been applied to the readjustments made during the succeeding years. It is estimated that the total amount of excess payment to the railroads avoided by reason of the new method of adjusting pay prescribed by this order to and including the fiscal year 1916 was $40,800,000.

The railroad companies generally have objected to order No. 412, and in an effort to make effective their protest have modified the agreement clause in the distance circulars obligating themselves to perform service in accordance with the Postal Laws and Regulations by excepting this order. This office in every case continues to make suitable reply to this exception, and informs the carriers that the amount of compensation for the transportation of the mails, which will be fixed by the Postmaster General, in accordance with the terms of order No. 412, is all the compensation that will be paid them for service on their routes.

The appeals to the Supreme Court of the United States of the Chicago & Alton Railroad Co. and the Yazoo & Mississippi Valley Railroad Co. from the decision of the Court of Claims sustaining the legality of order No. 412, rendered May 18, 1914, which were assigned by the Supreme Court to the calendar for reargument, as referred to in the last annual report, were not heard during the past year.

Other cases which were pending in the courts at the time of the last annual report.—The case of the Delaware, Lackawanna & Western

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Railroad Co. *v.* The United States, involving the question of the right of the department to apply the reductions in rates provided for by the act of March 2, 1907 (34 Stats., 1212), to routes affected on which the compensation had been theretofore fixed for four-year terms and which terms had not expired, was heard by the Court of Claims during the past year and a decision rendered June 5, 1916. The court held that the Postmaster General was authorized, under the power reserved to him in the orders adjusting pay on the routes, to apply the reductions in such cases, sustaining the action of the department. In the decided case the orders complained of were issued September 12, 1907, to take effect July 1, 1907. The court expressed the opinion that the claimant was entitled to receive the rates fixed by the readjustment orders made in 1905 until they were changed by the Postmaster General as directed by the act of 1907 and gave judgment in favor of the claimant for the difference between the two rates for the period from July 1 up to September 12, 1907. The defendants have filed in the court a motion to vacate and set aside this judgment and to grant a new trial on the ground of error of law in this particular.

None of the other cases which were referred to in the last annual report as pending in the Court of Claims were heard by the court during the past year.

Certain important railroads in New England filed actions in the Court of Claims during the past year claiming that the act of 1873, authorizing payment to railroads for the transportation of mails on the basis of the weight of mails carried, provides for payment to the carriers on the basis of the average daily weight carried each year, instead of the average daily weight ascertained by quadrennial weighings, and seeking to recover from the United States for the alleged average annual increases in the weight of mails.

Railway post-office cars.—The annual rate of expenditure for this service on June 30, 1916, was $4,096,286.59, being $117,062.33, or 2.78 per cent less than on June 30, 1915.

The amount available for the fiscal year was $5,412,000, being the amount of appropriation for this item for the fiscal year 1915, which was made available for the year 1916 by joint resolution of Congress of March 4, 1915, the Post Office appropriation bill having failed of passage. The estimate of the department for the fiscal year 1916 was $4,660,000, or $712,000 less than the appropriation for 1915. The sum expended, as reported by the auditor, to September 8, 1916, was $4,203,721.20 leaving a balance of $1,208,278.80 out of which unsettled accounts must be paid. The large unexpended balance is principally due to the fact that the amount available for the year was $712,000 in excess of the estimate of the department and carried in the appropriation bill which failed of passage. In addition the department extended in the Railway Mail Service the policy of the distribution in terminal railway post offices of parcel post and other mail in transit, thus rendering unnecessary some of the then existing authorizations of car space and enabling reductions to be made, as well as obviating the necessity for additional space authorizations.

The amount available for the fiscal year 1917 is $4,397,000.

The annual rate of expenditure was:

June 30, 1916	$4,096,286.59
July 1, 1916	4,096,239.26
September 30, 1916	3,980,471.26

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DEDUCTIONS AND FINES.

The following statement shows the amount of deductions and fines and remissions:

Gross amount of deductions and fines by orders issued during the fiscal year ended June 30, 1916		$143,913.36
Amount of remissions of deductions	$714.68	
Amount of remission of fines	1,253.25	
		1,967.93
Net amount of deductions and fines under orders issued during the fiscal year ended June 30, 1916		141,945.43

The above amounts are classified as follows:

Service.	Deductions and fines.	Remissions.	Net deductions and fines.
Railroad transportation	$135,836.42	$1,476.64	$134,359.78
Railway post-office cars	8,076.94	491.29	7,585.65
Total	143,913.36	1,967.93	141,945.43

The provisions of the laws providing for the annual replacement by railroad companies of 25 per cent of railway post-office cars not complying with the requirements of the act of August 24, 1912 (that is, not constructed of steel, steel underframe, or other equally indestructible material), have been enforced. The compliance by companies with the provisions of the law has been generally prompt and satisfactory and it has been found necessary to impose penalties for failure to provide cars of the character required by law in only one or two cases.

FREIGHT ON MAIL BAGS, POSTAL CARDS, ETC.

The amount available for this item for the fiscal year ended June 30, 1916, was $510,000, the amount of appropriation for the fiscal year 1915, which was continued for the fiscal year 1916, by the joint resolution of Congress of March 4, 1915, the Post Office appropriation bill having failed of passage. A deficiency appropriation of $84,000 was authorized by the act of September 8, 1916, making the sum of $594,000 available for this service. The amount available for the fiscal year 1917 is $645,000.

EMERGENCY SHIPMENTS OF MAIL BAGS DURING THE HOLIDAY SEASON.

The provision of law authorizing the Postmaster General in cases of emergency between November 15 and January 15 in any year to return to the mails empty mail bags which have theretofore been transported by freight and transport them in mail cars at regular mail rates was made use of to a much greater extent during the holiday season of 1915 than ever before. An unprecedented demand for equipment to inclose the enormous volume of mails received, taxed the resources of the departments to the utmost, and although the expedited transmission afforded by the regular mail trains was fully made use of to supply the heavy requirements for additional equipment, it was also found

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necessary to secure a large quantity of additional sacks. The expenditures for the transportation of empty equipment in mail trains during the period aggregated $48,567.14, an increase of $29,441.55 over the cost by freight. Service by express was also utilized where a lower rate than the average mail rate could be secured. The increase in expenditure for express service was $10,276.13 over the cost by freight.

The experience of past holiday seasons and the fact that at other times there frequently arise unusual demands for equipment which must be met promptly, has shown the necessity for an extension of the period during which such matter may be transported in the regular mail trains, as recommended by the department in previous annual reports. This recommendation was renewed to the Sixty-fourth Congress and was included as section 3 of House bill 562, an act to amend the act approved June 25, 1910, authorizing the postal savings system, and for other purposes, which became a law May 18, 1916.

As the period as extended—October 1 to April 1—embraces practically the entire season of heavy mails, the department will be enabled to meet all demands for unusual quantities of equipment with promptness.

RAILWAY MAIL PAY LEGISLATION.

Previous annual reports have related the progress of the efforts of the department to secure a revision of the existing laws governing the authorization of and payment for railroad transportation of the mails. The report for 1915 carried the history of the proposed legislation through the Sixty-third Congress, which body failed to pass the Post Office appropriation bill for 1916, containing the department's railway mail pay provision, although it had been agreed upon in conference.

The suggested legislation, in substantially the same form as it passed both Houses of the Sixty-third Congress, was embraced as a section of the Post Office appropriation bill for the fiscal year 1917 as reported to the House. Exhaustive hearings were granted the representatives of the railroads by the Committee on Post Offices and Post Roads of both Houses, and the department officials were also heard.

The House of Representatives passed the bill practically as introduced, and the Senate, after a discussion of several days, passed the bill with an amendment providing for the reference of the question of method and rates of pay to the Interstate Commerce Commission for determination, and the bill went to the conference committee, which finally reported a measure, which was agreed to by both Houses and became a law on July 28, 1916.

The measure in the form in which it became law included the provisions recommended by the department, with the substitution for the department's provision for reference to the Interstate Commerce Commission of the determination of the adequacy of the rates a provision that, pending the decision of said commission as to the basis and rates of pay, the existing method and rates shall remain in effect, except on such routes or systems as the Postmaster General shall select and to the extent he may find it practicable and necessary to

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place upon the space system of pay in the manner and at the rates provided therein, with the consent and approval of the Interstate Commerce Commission, in order to properly present to said commission the matters referred thereto by the statute.

DIVISION OF MISCELLANEOUS TRANSPORTATION.

NOTE.—The service by screen wagons, pneumatic tubes, and mail messengers was transferred to the jurisdiction of the First Assistant Postmaster General on July 1, 1916, and the Division of Miscellaneous Transportation was discontinued.

ELECTRIC AND CABLE CAR SERVICE.

Service and expenditure.

Number of routes	571
Length of routes.....miles	8,106.90
Annual travel.....do	12,869,216.51
Annual rate of expenditure	$602,423.63
Average rate of cost per mile of length	$74.31
Average rate of cost per mile traveled.....cents	4.68
Average number of trips per week	15.26

Comparison with the previous year shows:

	Per cent.
Increase in number of routes	2, or 0.351
Decrease in length of routes	75.78, or 0.926
Decrease in annual travel	1,079,634.45, or 7.745
Decrease in annual rate of expenditure	$17,028.78, or 2.078
Decrease in average rate of cost per mile of length	$25.83, or 25.793
Decrease in average rate of cost per mile traveled....cents	1.19, or 20.272
Decrease in average number of trips per week	1.13, or 6.894

The decrease in the electric-car service is largely due to the discontinuance of service in Boston, Philadelphia, Chicago, and St. Louis, which was superseded by Government-owned automobiles and regular contract screen-wagon service.

The appropriation for the fiscal year 1916 provided by the joint resolution of March 4, 1915, was $784,000; the amount expended, as reported by the auditor, to September 8, 1916, was $708,210.62, leaving a balance of $75,789.38, out of which unsettled accounts must be paid.

The appropriation for the fiscal year 1917 is $660,000.

The annual rate of expenditure was:

July 1, 1916	$600,494.37
September 30, 1916	603,296.89

The amount estimated as necessary for the fiscal year ending June 30, 1918, is $581,000, being $79,000, or 11.96 per cent, less than the appropriation for the previous year.

Electric-car rates.—The annual rate of expenditure for electric and cable car service authorized at the various rates provided by law was on June 30, 1916, as follows:

At 3 cents a mile	$197,780.86
At 4 cents a mile	76,187.22
Under special provision	6,709.90
At railroad rates	75,596.25
At schedule rates other than 3 and 4 cents a mile	38,800.34
At apartment and independent car regular rates	49,455.06
At apartment and independent car maximum rates	152,501.56
At special-agreement rates less than regular rates	5,392.44
	602,423.63

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REGULATION, SCREEN, OR OTHER WAGON SERVICE.

Service and expenditure.

Number of routes		264
Length of routes	miles	1,380.08
Annual travel	do	5,494,556.79
Annual rate of expenditure		$2,185,144.61
Average rate of cost per mile of length		$1,583.44
Average rate of cost per mile traveled	cents	38.28
Average number of trips per week		38.28

Comparison with the previous year shows:

		Per cent.
Decrease in number of routes	27, or	9.277
Decrease in length of routes (miles)	67.58, or	4.668
Decrease in annual travel (do)	519,097.48, or	8.632
Decrease in annual rate of expenditure	$334,013.25, or	13.259
Decrease in average rate of cost per mile of length	$156.71, or	9.005
Decrease in average rate of cost per mile traveled (cents)	3.61, or	8.617
Decrease in average number of trips per week	1.66, or	4.156

The decreases are principally due to the fact that during the fiscal year certain regular contract service was relet on an equipment basis, no record of the annual travel performed being available, and to the transfer of certain other wagon service to service performed by Government-owned equipment not at an annual rate of expenditure.

The amount available for the fiscal year 1916 provided by the joint resolution of March 4, 1915, was $2,600,000. The deficiency appropriation provided by the act of February 28, 1916, was $305,000, making the total appropriation for the fiscal year $2,905,000.

The total appropriation for wagon service, $2,905,000, including $31,638.59 from the electric and cable car appropriation under the special provision contained therein, was reported as expended by the auditor to September 8, 1916, leaving a balance of $68,361.41 from the special provision under the electric and cable car appropriation available for the payment of unsettled accounts of wagon service.

The jurisdiction of regulation, screen, or other wagon service was transferred to the office of the First Assistant Postmaster General, effective July 1, 1916.

The practice adopted in connection with the advertisement issued under date of February 15, 1915, for service in the third contract section was continued in the advertisement for service in the second contract section, and, in addition to inviting proposals for the performance of screen-wagon service under independent contracts, bids were invited for the performance of city delivery and collection service under independent contracts, for the performance of screen-wagon and city delivery and collection service combined under one contract at places where it was deemed practicable and advisable, and for furnishing vehicles to be operated a specific number of hours a day under the direction of the postmaster, approved by the department, for the performance of such combined service at such places. Proposals received on these various bases enabled the department to choose the most economical and advantageous method of providing the service in each individual case and to make comparisons with the estimates for the purchase and operation of Government-owned vehicles.

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Under the advertisement of the second contract section contracts were entered into for the performance of combined screen-wagon and city delivery and collection service at Wilmington, N. C.; Charleston, Columbia, and Greenville, S. C.; Macon and Savannah, Ga.; Birmingham, Montgomery, and Tuscaloosa, Ala.; Meridian, Jackson, and Vicksburg, Miss.; Chattanooga and Memphis, Tenn.; and Louisville and Owensboro, Ky.

THE GOVERNMENT-OWNED MOTOR VEHICLE SERVICE.

The advantageous operation of Government-owned automobiles, on an experimental basis, in the combined screen-wagon and city delivery and collection service in Washington, D. C., during the preceding fiscal year, warranted the extension and amplification of the service; and after investigating local conditions and considering existing contracts and proposals of prospective contractors, the following additional installations of the Government-owned service were determined upon and effected:

Detroit, Mich., September 1, 1915, with 24 one-half ton; 4 three-quarter ton; 7 one and one-half ton, and 1 three-ton trucks. Four one-half ton, 1 three-quarter and 1 one and one-half ton trucks were added during the year, and the three-ton truck was transferred to Philadelphia.

St. Louis, Mo., November 15, 1915, with 22 one-half ton; 14 three-quarter ton, and 6 one and one-half ton trucks.

Philadelphia, Pa., November 15, 1915, with 14 one-half ton; 35 three-quarter ton (20 of which had been in service in six other cities); and 10 one and one-half ton trucks. One three-ton and one three-quarter ton trucks were added during the year.

Chicago, Ill., November 22, 1915, with 15 one-half ton; 35 three-quarter ton; 36 one and one-half ton and 10 three-ton trucks, to which 10 half-ton trucks were added during the year.

Indianapolis, Ind., February 1, 1916, with 9 one-half ton trucks.

The extensions of the combined Government-owned service operated to absorb screen wagon, mail messenger, and street car transportation; to eliminate the rental of vehicles used in the collection and delivery of mails by letter carriers, and also the services of clerks and carriers employed in connection with the city transportation of mails. A comparative statement showing the cost of former service as against the cost of performing such service (with additions thereto which were deemed expedient at the time of the respective installations) by Government-owned vehicles follows:

Comparative statement of cost of operation.

Place of operation.	Per annum.		Net saving.
	Former service.	Government-owned.	
Chicago, Ill.	$311,985.14	$255,208.00	$56,777.14
Detroit, Mich.	147,600.40	78,442.15	69,158.25
Indianapolis, Ind.	25,500.00	24,705.21	794.79
Philadelphia, Pa.	258,542.52	240,980.30	17,562.22
St. Louis, Mo.	197,235.43	113,005.46	84,229.97
Washington, D. C.	59,218.21	25,616.33	33,601.88
Total.	1,000,081.70	737,957.45	262,124.25

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During the latter part of June, 26 additional one-half ton trucks were added to the Philadelphia fleet for the purpose of absorbing contract vehicles in the city delivery and collection service. It is estimated that this extension will result in a further saving at the rate of $40,565.05 per annum.

At the same time the Chicago fleet was increased by 110 one-half ton trucks to take up similar service in that city, which will result in an additional estimated saving at the rate of approximately $139,681.37 per annum.

ADDITIONAL SERVICE PROVIDED.

The foregoing operating cost by Government-owned vehicles includes the performance of considerable additional service over and above that required under the former contract services.

In Detroit five additional Government-owned trucks were provided, which performed mileage at the rate of 60,106.66 per annum, at a cost approximating $7,770 per annum.

The former contract service in Philadelphia embraced an annual mileage of 809,285.03, whereas Government-owned service now performed aggregates 965,778.65—an increase of 146,493.62 miles, or 18.1 per cent.

In St. Louis the annual mileage of street car service aggregated 267,905.06, and embraced 58 trips daily. Government-owned service substituted therefor aggregates an annual mileage of 355,408.86, with 84 trips daily, an increased annual mileage of 87,503.80 embracing 26 trips daily. One additional car was provided for the parcel-post delivery service.

SPECIAL ADVANTAGES OF GOVERNMENT OPERATION.

The special advantages, coordinate with the financial saving, obtained through Government operation of the city mail transportation services may be summarized as follows:

(1) Acceleration of vehicular movement over substituted service, thereby relieving platform congestion—fewer vehicles being required at railroad stations and in limited parking areas.

(2) Corresponding advance in the delivery and dispatch of mails by reducing time required for scheduled trips, consequently later closes, containing larger accumulations of mail, are possible. Street cars essentially restricted to permanent trackage were, under former contracts, required to traverse excessive mileage to serve points which are now served by direct routings. For example, mail collected from street letter boxes in about 75 per cent of the residential districts of St. Louis between 3 and 5 o'clock p. m. (about 5,900 pieces daily) reaches the main office at 5.30 p. m., from 30 to 45 minutes in advance of the time of delivery by the former street car service. Furthermore, the improved Government-owned service has made it possible to arrange schedules whereby the delivery of mails has been advanced from 5 to 15 minutes in a territory of 21 stations, comprising an area with an estimated population of 480,000, served by 369 carrier routes. In the Chicago service a net gain of 168 hours 54 minutes per day in the transit of city mails over and above the former street car service

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is effected by the operation of 19 trucks serving 6 of the main station routes.

(3) Reductions in the volume of distribution of transit mails in terminal railway post offices. By reason of the increased body capacity and the accelerated movement of Government-owned vehicles, connections are now insured in Chicago which were formerly treated as "missed connections" and sent to the terminal railway post offices for redistribution.

(4) Elasticity of service and adaptability of the vehicular units—a decided advantage over private contract operation whereby the separate services overlapped and were cumbersome in control. During the recent strike of express drivers in Chicago this advantage was fully demonstrated. Although the increased volume of parcel-post matter precipitated upon the service was equivalent to that handled during the last holiday season, vehicles were so routed as to absorb the additional work without interruption to the current schedules.

EQUIPMENT NECESSITIES.

The establishment, organization, and maintenance of the Government-owned service has involved work largely of a constructive nature. The transportation requirements of the Postal Service are exceptional in character and more exacting than the demands of similar agencies of commercial institutions, the respective services not being comparable. It is of prime importance that Government vehicles be substantial in construction and reliable in operation; and the mechanical irregularities encountered in the experimental operation suggests the advisability of adopting uniformly for the respective divisions of the service a type of truck which has demonstrated its superiority over other types of like capacity under similar service conditions. With respect to tire equipment, half-ton trucks should be fitted with pneumatic tires and three-quarter ton trucks with soft base cushion tires. The excessive cost of pneumatic tires on the three-quarter ton trucks, and the delays incident to their use, indicates the necessity of equipping these trucks with cushion tires. Delays, if only limited to the time required in changing the tire, frequently cause the delay of heavy dispatches routed in accordance with close schedules.

The following statement shows the relative cost per mile of the respective types of tires in connection with the operation of three-quarter ton trucks:

	Tire depreciation.	Miles.	Cost per mile.
Chicago (hard-base cushion)	$3,599.10	168,276	$0.0214
Philadelphia (pneumatic)	12,244.83	377,348	.0325
St. Louis (soft-base cushion)	3,530.91	237,877	.0148

The steady advance in the price of gasoline during the year resulted in a corresponding increase in the operating cost of the service, amounting in Philadelphia alone to an increase at the rate of $8,590 per annum.

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FURTHER EXTENSIONS OF THE SERVICE.

The Government-owned motor vehicle service has passed the experimental stage. It has been found more efficient, more economical, and of greater utility than the former miscellaneous contract and other services at the points selected. However, conservatism should govern in considering further extensions. Additional installations should not be effected unless the number of trucks necessary to perform a given service will justify the overhead charges of maintenance, nor unless there be a substantial indicated saving over existing contracts or pending proposals.

PNEUMATIC-TUBE SERVICE.

A statement showing the pneumatic-tube service under contract and that in part of it in operation June 30, 1916, is contained in Table A.

The appropriation for the fiscal year provided by the joint resolution of March 4, 1915, was $966,800. The sum reported by the auditor as expended under accounts stated to September 8, 1916, was $961,839.29, leaving $4,969.71 out of which unsettled accounts must be paid.

The jurisdiction of this service was transferred to the office of the First Assistant Postmaster General effective July 1, 1916.

Changes in the service were made during the fiscal year as follows:

Pneumatic-tube lines accepted during the fiscal year ended June 30, 1916.

Route No.	City and State.	Length.	Annual pay.
	NEW YORK, N. Y.		
507011	Readjustment of distances made necessary by subway and municipal water department construction, General Post Office Wall Street Station to Station P	*Miles.* 0.0011	$18.70
	Station O and Station P	.0007	11.90
	CHICAGO, ILL.		
535004	Readjustment of distances due to relocation made necessary by construction work in connection with the new Union Station	.0066	112.20

Pneumatic tube lines decreased during the fiscal year ended June 30, 1916.

Route No.	City and State	Length.	Annual pay.
	NEW YORK, N. Y.		
507011	Readjustment of distances made necessary by subway and municipal water department construction, Station O and Pennsylvania Station	*Miles.* 0.0006	$10.20
	Relocation of Station D	.0068	115.60

The contracts for pneumatic-tube service expired by limitation June 30, 1916, but in accordance with one of the provisions thereof the Postmaster General, on May 5, 1916, ordered the contracts continued in force to December 31, 1916, and Congress subsequently extended the period to March 4, 1917.

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STEAMBOAT OR OTHER POWER-BOAT SERVICE.

Service and expenditure.

Number of routes	260
Length of routes.....miles..	32,481.15
Annual travel.....do....	5,470,272.24
Annual rate of expenditure	$937,893.54
Average rate of cost per mile of length	$28.88
Average rate of cost per mile traveled.....cents..	16.77
Average number of trips per week	1.62

Comparison with the report of the previous year shows:

	Per cent.
Number of routes	No change.
Increase in length of routes.....miles..	79.20 or 0.244
Decrease in annual travel.....do....	214,587.76 or 3.774
Decrease in annual rate of expenditure	$52,420.30 or 5.293
Decrease in average cost per mile of length	$1.68 or 5.497
Decrease in average rate of cost per mile traveled.....cents..	0.65 or 3.731
Decrease in average number of trips per week	0.06 or 3.571

The appropriation for the fiscal year 1916 provided by the joint resolution of March 4, 1915, was $1,049,400.

The sum expended as reported by the auditor under accounts stated to September 8, 1916, was $993,834.60, leaving an unexpended balance of $55,565.40, out of which unsettled accounts must be paid.

The amount available for steamboat or other power-boat or aeroplane service for the fiscal year 1917 is $1,060,000.

The annual rate of expenditure was:

June 30, 1916	[1] $937,893.54
July 1, 1916	[1] 948,439.27
September 30, 1916	[1] 940,695.13

The amount estimated as necessary for the fiscal year ending June 30, 1918, is $1,224,000, being $164,000, or 15.47 per cent more than the appropriation for the current fiscal year.

The contracts for steamboat or other power-boat service in the second contract section expired on June 30, 1916, and during the past year new contracts have been entered into for a term of four years from July 1, 1916, with the exception of route 79099, New York, N. Y., to San Juan, Porto Rico, which contract was extended to December 31, 1916. The annual rate of expenditure on July 1, 1916, in the second contract section under the new contracts was $174,230.10, an increase of $8,138.13, or 4.90 per cent, in the rate under the contracts in force June 30, 1916.

The new advertisement invites proposals for the steamboat or other power-boat service in the first contract section. On September 30, 1916, this service embraced 77 routes with an aggregate length of 3,066.83 miles and an annual travel of 1,600,215.85 miles, with an annual rate of expenditure of $185,207.54, or 11.57 cents per mile of annual travel.

[1] Does not include the annual expenditure on routes where the mails were carried at a certain rate per pound. The cost of this service during the fiscal year 1916 was $78,936.69.

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MAIL-MESSENGER SERVICE.

Service and expenditure.

Number of routes	8,027
Length of routes.....miles..	5,571.60
Annual travel.....do....	12,410,098.48
Annual rate of expenditure	$2,092,044.36
Average rate of cost per mile of length	$375.48
Average rate of cost per mile traveled.....cents..	16.86
Average number of trips per week	21.41

Comparison with the previous year shows:

	Per cent.
Decrease in number of routes	67 or 0.827
Increase in length of routes.....miles..	26.26 or 0.473
Decrease in annual travel.....do....	397,356.97 or 3.102
Decrease in annual rate of expenditures	$68,916.82 or 3.189
Decrease in average rate of cost per mile of length	$14.21 or 3.646
Decrease in average rate of cost per mile traveled .....cents..	0.01 or 0.069
Decrease in average number of trips per week	0.80 or 3.601

The appropriation for the fiscal year 1916 provided by the joint resolution of March 4, 1915, was $2,000,000. The deficiency appropriation provided by the act of February 28, 1916, was $160,000, making the total appropriation for the fiscal year $2,160,000.

The sum expended as reported by the auditor on accounts stated to September 8, 1916, was $2,149,766.37, leaving an unexpended balance of $10,233.63, out of which unsettled accounts must be paid.

The jurisdiction of mail-messenger service was transferred to the office of the First Assistant Postmaster General effective July 1, 1916.

STAR SERVICE IN ALASKA.

Service and expenditure.

Number of routes	21
Length of routes.....miles..	4,544
Annual travel.....do....	249,331.10
Annual rate of expenditure	$260,518.50
Average rate of cost per mile of length	$57.33
Average rate of cost per mile traveled	$1.04
Average number of trips per week	.52

Comparison with the service as shown in the report for the previous year shows no change.

The appropriation for the fiscal year 1916, provided by the joint resolution of March 4, 1915, was $304,000. The deficiency appropriation provided by the act of September 8, 1916, was $1,100, making the total appropriation for the year $305,100.

The amount expended for this service during the fiscal year 1916, as reported by the auditor to September 8, 1916, was $282,909.28, leaving an unexpended balance of $22,190.72, out of which unsettled accounts must be paid.

The appropriation for the fiscal year 1917 is $306,000.

The annual rate of expenditure was:

July 1, 1916	[1] $260,518.50
Sept. 30, 1916	[1] 260,518.50

The amount estimated as necessary for the fiscal year ending June 30, 1918, is $312,000, being $6,000, or 1.97 per cent, more than the appropriation for the current fiscal year.

[1] Does not include the annual expenditure for emergency service in Alaska, for which service during the fiscal year of 1916 authority was given for the expenditure of $46,015.

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Special office service in Alaska.—The amount expended for service of this class in Alaska during the year ended June 30, 1916, was $78.71; during the year ended June 30, 1915, it was $113.99.

The number of special office routes on June 30, 1916, was 37, with an aggregate length of 2,432 miles and an annual travel (estimated on the basis of one round trip every four weeks) of 63,232 miles.

Compensation for this service is limited by law. The Postmaster General may allow two-thirds of the salary paid to the postmaster at such special office. Special office service is regarded as a temporary arrangement for the supply of offices not on or near established mail routes.

Expenditures for this service are chargeable to the appropriation for star service in Alaska.

DEDUCTIONS AND FINES.

The following statement shows the amount of deductions and fines and remissions in the transportation services assigned to the Division of Miscellaneous Transportation:

Amount of deductions and fines from pay of postal contractors and others during the fiscal year ended June 30, 1916		$154,985.58
Amount of remissions on deductions on account of satisfactory explanations	$768.50	
Amount of remissions on fines	52.00	
		820.50
Net amount of deductions and fines under orders issued during the fiscal year ended June 30, 1916		154,165.08

The above amounts are classified as follows:

Service.	Deductions and fines.	Remissions.	Net deductions and fines.
Electric and cable car	$1,510.56	$55.57	$1,454.99
Screen wagon	117,604.80	501.51	117,103.29
Pneumatic tube	347.62		347.62
Mail messenger	2,373.78	83.15	2,290.63
Steamboat	27,810.50	36.00	27,774.50
Alaska star	2,338.32	144.27	2,194.05
	154,985.58	820.50	154,165.08

DIVISION OF RAILWAY MAIL SERVICE.

OPERATION.

Appropriations, expenditures, and estimates.—The appropriations for the fiscal year and expenditures as reported by the Auditor for the Post Office Department under accounts stated to September 8, 1916, and the appropriations for 1917 and the estimates for 1918 for the Railway Mail Service are shown in Table A. The total of the appropriations made available for the Railway Mail Service for 1917, is $31,931,669, and of the estimates for 1918 is $31,108,410, being a decrease of $823,259, or 2.578 per cent under the appropriations for 1917.

Extent of service and force employed.—On June 30, 1916, the length of lines on which railway post-office service was in operation was 217,462.62 miles, with an annual miles of service of 327,069,708, and

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the length of lines on which closed-pouch service was in operation was 56,418.52 miles and an annual miles of service of 194,207,140. The details are set forth in Table A.

On June 30, 1916, there were 34 officers, 114 chief clerks, 18,649 permanent railway postal clerks, and 521 acting railway postal clerks employed in the service The details are set forth in Table A. There was a total of 258 appointments and transfers to new places during the year at an increase in the annual rate of expenditure of $232,200. Notwithstanding that 258 appointments and transfers were made during the year, there was a net decrease in the number of clerks (including acting clerks) employed at the close of the year of 281 as compared with the number in the service at the close of the previous year.

New railway post-office service.—During the past fiscal year changes have been made on 10,705.36 miles of the service. Of this total 4,837.17 miles represent the establishment of apartment-car service, superseding service previously provided by closed pouches forwarded upon express trains; 1,394.15 miles of apartment-car service having been superseded by full railway post-office car service, and additional apartment cars have been placed in full railway post-office lines on 4,474.04 miles.

The following table is a summary showing the changes that have been made in the several classes of service, separately described, and stating in miles the treatment provided:

	Miles.
Closed-pouch service superseded by apartment-car service	4,837.17
Apartment-car service superseded by full railway post-office cars	1,394.15
Additional apartment cars placed in full railway post-office lines	4,474.04
	10,705.36
Reductions:	
Apartment cars superseded by closed-pouch service	4,864.04
Full railway post-office cars superseded by apartment cars	1,340.37
	6,204.41
Discontinued:	
Full railway post-office cars 60 feet in length	697.24
Full railway post-office cars 50 feet in length	520.75
Full railway post-office cars 40 feet in length	2,803.11
	4,021.10

Equipment.—The following table shows the car equipment in operation on June 30, 1916, as compared with June 30, 1915:

	On railroad lines.									
	Full R. P. O. cars in use.	Full R. P. O. cars in reserve.	Total number full R. P. O. cars.	Apartment cars in use.	Apartment cars in reserve.	Total number apartment cars.	Total number full R. P. O. and apartment cars.	Apartment cars on electric lines.	Apartments on steamboat lines.	Grand total.
June 30, 1915	917	494	1,411	3,014	1,398	4,412	5,823	57	78	5,958
June 30, 1916	904	437	1,341	3,133	1,259	4,392	5,733	[2]82	79	5,894
Increase	[3]13	[4]57	[3]70	119	[3]139	[3]20	90	25	1	[4]64

[1] 26 in use, 31 in reserve. [2] 29 in use, 53 in reserve. [3] Decrease.

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Of the 904 full cars in use, 694 full cars are actually required to keep up full railway post-office lines, 95 full cars are furnished in lieu of apartment cars to keep up apartment-car lines running over full railway post-office lines, and 115 full cars are furnished in lieu of apartment cars to keep up apartment-car lines. In addition, there are 437 full cars in reserve.

Of the 3,162 apartment cars in use (which includes 29 apartment cars in use on electric lines) 439 are actually required to keep up apartment-car lines running over full railway post-office lines and 2,723 to keep up apartment-car lines (including 29 apartment cars on electric lines). In addition, there are 1,312 apartment cars in reserve (which includes 53 apartment cars on electric lines).

Of the 1,341 full railway post-office cars in use and in reserve on June 30, 1916, 878 are all-steel cars, 187 steel-underframe cars, 261 wooden steel-reinforced cars, and 15 wooden cars; a net increase of 31 all-steel cars, and a net decrease of 16 steel-underframe, 76 wooden steel-reinforced, and 9 wooden cars, on June 30, 1916, as compared with June 30, 1915.

Full railway post-office cars in use and in reserve on June 30, 1916.

	Length of car in feet.																				Total.
	40	41	43	44	45	49	50	51	52	54	55	57	59	60	61	62	63	65	69	70	
Steel	63	..	..	..	..	..	1	..	..	..	..	1	..	665	..	1	..	1	..	146	878
Steel-underframe	7	..	..	..	..	..	15	..	..	..	..	..	..	151	8	..	2	3	1	..	187
Wood steel-reinforced	21	5	1	7	1	2	42	1	2	3	1	..	4	166	5	..	..	..	..	..	261
Wood	2	..	..	..	..	1	5	..	..	..	..	..	..	7	..	..	..	..	..	..	15
Total	93	5	1	7	1	3	63	1	2	3	1	1	4	989	13	1	2	4	1	146	1,341

All of the 276 wooden steel-reinforced and wooden full railway post-office cars conform to the construction requirements of the department; 694 full cars in use on June 30, 1916, are actually required to keep up the service on full railway post-office lines. There are available for this requirement 1,065 steel and steel-underframe cars and 276 wooden steel-reinforced and wooden cars up to the construction requirements of the department, a total of 1,341 cars, a surplus of 647.

All of the 1,341 full railway post-office cars in use and in reserve on full and apartment railway post-office lines are reported as being up to sanitary requirements of the department.

Of the 4,474 apartment cars in use and in reserve on June 30, 1916, 871 are all-steel cars, 495 steel-underframe cars, 1,623 wooden steel-reinforced cars, and 1,485 wooden cars; a net increase of 106 all-steel cars, 31 steel-underframe cars, and 434 wooden steel-reinforced cars; and a net decrease of 566 wooden cars on June 30, 1916, as compared with June 30, 1915.

Apartment cars in use and in reserve on June 30, 1916.

	Under 15 feet.	15 and less than 18 feet.	18 and less than 20 feet.	20 and less than 22½ feet.	22½ and less than 25 feet.	25 and less than 30 feet.	30 feet and over.	Total.
Steel	55	27	.....	57	.....	80	652	871
Steel-underframe	.....	22	1	27	2	79	364	495
Wood steel-reinforced	42	152	27	237	24	336	805	1,623
Wood	263	244	85	357	56	276	204	1,485
Total	360	445	113	678	82	771	2,025	4,474

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Of the 3,108 wooden steel-reinforced and wooden apartment cars, 2,778 conform to the construction requirements of the department, leaving 330 (44 of these being wooden steel-reinforced cars) not up to these requirements.

To keep up the service 3,162 apartment cars (including 29 on electric lines) are actually required. There are available for this requirement 1,366 steel and steel-underframe apartment cars and 2,778 wooden steel-reinforced and wooden apartment cars up to construction requirements of the department, a total of 4,144 cars, a surplus of 982.

Of the 4,474 apartment cars in use and in reserve, 4,144 are reported as being up to the sanitary requirements of the department and 330 as not being up to these requirements in a minor particular only.

During the fiscal year 32 new all-steel full railway post-office cars have been built and made available for service; 1 steel-underframe full railway post-office car and 6 wooden steel-reinforced full railway post-office cars have been rebuilt and made available for service; 2 wooden steel-reinforced full railway post-office cars, heretofore reported as retired, have been restored and made available for service; and 2 wooden full railway post-office cars, heretofore classified as wooden steel-reinforced full railway post-office cars, have been restored to their proper classification and made available for service; 116 new all-steel apartment cars and 1 new wooden steel-reinforced apartment car have been built and made available for service; 7 all-steel, 39 steel-underframe, 504 wooden steel-reinforced, and 76 wooden apartment cars have been rebuilt and made avilable for service.

During the year 1 all-steel full railway post-office car, 17 steel-underframe full railway post-office cars, 84 wooden steel-reinforced full railway post-office cars, and 11 wooden full railway post-office cars are reported as having been withdrawn from service as full railway post-office cars, some for permanent retirement as mail cars, and others for rebuilding and conversion into apartment cars; 17 all-steel apartment cars, 8 steel-underframe apartment cars, 71 wooden steel-reinforced apartment cars; and 642 wooden apartment cars are reported as having been withdrawn from service, some for permanent retirement as mail cars, and others for rebuilding and conversion into full and apartment cars.

At the close of the year there were reported as being under construction 28 all-steel full railway post-office cars, 62 all-steel apartment cars, 4 wooden apartment cars to which steel underframes will be applied, and 5 wooden steel-reinforced apartment cars (3 of which are to be new cars, and 2 are baggage cars to be converted into mail-baggage cars).

Orders have been placed by the railroad companies for the construction of 9 all-steel full railway post-office cars, 23 all-steel apartment cars, and 4 wooden apartment cars, to which steel underframes will be applied. In addition the companies propose to construct in the near future 5 all-steel full railway post-office cars and 28 all-steel apartment cars, 1 wooden apartment car to which steel underframe will be applied, 6 wooden steel-reinforced apartment cars, and 1 wooden apartment car to be reconstructed and interior brought up to standard.

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It will be seen that the work of securing stronger railway post-office cars has been continued during the year with very substantial results. Of the 1,341 full cars in use and in reserve at the end of the fiscal year, under review, 1,065, or 79.42 per cent, were of all-steel and steel-underframe construction; and of the 4,474 apartment cars in use and in reserve 1,366, or 30.53 per cent, were of all-steel and steel-underframe construction. Of the whole number (5,815) of full and apartment cars in use and in reserve 2,431, or 41.80 per cent, were of all-steel and steel-underframe construction. The following table shows the improvement that has been made in postal-car construction:

Full and apartment cars in use and in reserve.

Fiscal year.	Wood and wood steel reinforced.	Steel, and steel underframe.	Total.
1908	4,910	.....	4,910
1909	5,071	26	5,097
1910	4,922	165	5,087
1911	4,550	733	5,283
1912	4,288	1,129	5,417
1913	4,000	1,473	5,473
1914	3,758	1,971	5,729
1915	3,601	2,279	5,880
1916	3,384	2,431	5,815

The Interstate Commerce Commission, through its inspectors, has rendered valuable assistance in the work of examining and reporting upon the condition of postal cars. The assistance thus given, particularly in connection with cars of reported doubtful physical condition, has enabled the department to obtain improvement in the construction of such cars. The officer of the Railway Mail Service, especially assigned to postal-car inspection, has made inspections of new postal cars under construction and of postal cars being rebuilt to conform to the standard specifications of the department, in 64 cities in 27 States.

Distribution.—It is estimated (computed on a basis of an average of 25.16 letters to a package and an average of 52.14 pieces to a sack of second, third, and fourth class matter, except bulky and fragile parcel-post mail on an average of 13.3 pieces to a sack, and circulars on an average of 25.16 to a package, 150 packages to a sack) that there were 8,624,469,593 distributions and redistributions of pieces of first-class and 5,745,112,993 distributions and redistributions of pieces of second, third, and fourth class matter; a total of 14,369,582,586 distributions and redistributions of pieces, exclusive of registered matter, by railway postal clerks during the past year, an increase of 3.699 per cent over the previous year.

Of registered matter there were handled and rehandled in transit 53,207,604 letters, packages, and cases, 2,509,898 rotary-lock pouches and sacks, 2,225,226 registered package jackets, and 121,680 lead-seal sacks. In handling the registered matter above indicated, clerks made up and dispatched 308,978 rotary-lock pouches and sacks, 787,769 registered package jackets containing 5,356,384 pieces, and 3,710 lead-seal sacks containing 35,112 pieces; and received and opened 775,756 rotary-lock pouches and sacks, 693,247 registered

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package jackets containing 4,950,398 pieces, and 13,291 lead-seal sacks containing 111,906 pieces.

Of the 14,369,582,586 pieces of mail matter distributed and redistributed 14,367,325,426 pieces, or 99.984 per cent, were distributed and redistributed correctly.

Case examinations.—There were 36,347 examinations of permanent railway postal clerks; the number of cards handled was 30,401,141, of which 99.18 per cent were handled correctly. Last year's report shows 35,658 examinations, 31,189,722 cards handled, 99.03 per cent correctly. The number of 100 per cent examinations passed by permanent railway postal clerks was 4,470, or 12.29 per cent of the whole. Last year 4,121, or 11.55 per cent of the whole number, were passed 100 per cent correct.

The probationary clerks passed 8 examinations, handling 5,660 cards, 96.92 per cent correctly. Last year this class of clerks passed 838 examinations, handling 662,735 cards, 97.68 per cent correctly, and of the whole number of examinations passed 35, or 4.17 per cent, were passed 100 per cent correct. The decrease in the number of examinations passed by probationers during the fiscal year under review is due to the fact that very few appointments were made.

There were 5,128 examinations passed by substitutes, the number of cards handled was 4,115,919, of which 98.18 per cent were handled correctly. Last year there were 8,293 examinations and 6,877,796 cards handled, with 97.21 per cent correctly. Of the whole number of examinations passed by substitutes 318, or 6.20 per cent, were passed 100 per cent correct. Last year 408 examinations, or 4.92 per cent, were passed 100 per cent correct.

In addition to the above there were 7,547 examinations of post-office clerks conducted by the Railway Mail Service; the number of cards handled was 5,965,166, of which 96.70 per cent were handled correctly. Last year there were 4,760 examinations and 3,817,958 cards handled, with 95.83 per cent correctly. Of the whole number of examinations 639, or 8.46 per cent, were passed 100 per cent correct. Last year 356, or 7.48 per cent, were passed 100 per cent correct.

Casualties.—There were 163 railroad accidents during the fiscal year in which railway postal clerks (including substitutes) were either killed or injured, or in which mail matter was lost or damaged, resulting in 1 clerk being killed, 1 dying as a result of injuries, 67 seriously injured, and 158 slightly injured.

Of the number of railroad accidents shown above, 155 resulted in injuries to clerks, and 8, exclusive of those in which clerks were injured, resulted in loss or damage to mail.

The following table shows the kind and construction of the mail cars in which accidents to clerks occurred:

Kind of car.	Number of cars in accidents.	Number of clerks in these cars.	Clerks killed or died as result of injuries.	Clerks seriously injured in these cars.	Clerks slightly injured in these cars.	Total clerks injured and killed in these cars.
Wood	57	76	1	18	42	61
Wood-steel reenforced	18	25	.....	12	9	21
Steel	67	258	1	28	86	115
Steel underframe	22	57	.....	9	21	30
Total	164	416	2	67	158	227

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The total number of accidents of all kinds (railroad and otherwise) during the fiscal year, in which railway postal clerks (including substitutes) were either killed or injured, or in which mail matter was lost or damaged, was 479, resulting in 3 clerks being killed, 1 dying as the result of injuries, 127 seriously injured, and 417 slightly injured.

Of the number of accidents of all kinds shown above, 469 resulted in fatalities or injuries to clerks, and 10, exclusive of those in which clerks were injured, resulted in loss or damage to mail.

Classification of accidents of all kinds, with number of clerks injured:

1. Number of clerks injured in connection with mail cars in accidents due to railroad operation, 253, including 1 killed and 1 dying as result of injuries.
2. Number of clerks injured in connection with mail cars in accidents not due to railroad operation, 199, including 1 killed.
3. Number of clerks injured in all other accidents, 96, including 1 killed.

In addition to the above, there were 1 mail weigher slightly injured under classification 2, and 1 seriously and 1 slightly njured under classification 3.

The following is a list of the employees of the service killed, or who died as the result of injuries, during the year ended June 30, 1916:

December 12, 1915, F. R. Miles, died May 31, 1916, as result of accident due to second section of train 4, New York & Chicago R. P. O., East Division, running into rear end of first section of same train, at Utica, N. Y., which threw Clerk Miles to floor, causing injury to spine.

December 16, 1915, H. K. Newcomer, Dubuque & Chamberlain R. P. O., East Division, instantly killed at North McGregor, Iowa, while attempting to get off mail car before train came to stop.

March 4, 1916, George S. Lovejoy, Watertown & Sioux Falls R. P. O., instantly killed; entire train went through burnt bridge at Thomas, S. Dak.

March 13, 1916, David Rosenthal, instantly killed in elevator at Pittsburgh (Pa.) terminal; crushed to death.

SEPARATION OF SECOND-CLASS MATTER BY PUBLISHERS.

The weight of paid-at-the-pound rate second-class mail received from publishers during the fiscal year was 1,138,353,002 pounds, an increase of 91,208,728 pounds or 8.71 per cent increase over the previous year. Combining the paid-at-the-pound rate and free-in-county second-class mail matter received from publishers, the total amount for the year was 1,202,470,676 pounds.

At 259 of the largest post offices there were received in the mails during June, 1916, 2,260,149 sacks of second-class matter, representing 9,758 publications. Of these sacks 83.06 per cent were fully made up by the publishers and were dispatched intact, 11.19 per cent were partly made up, and 5.75 per cent were mixed Fully made-up matter comprises sacks made up by publishers addressed to States, post-offices, or routes which are dispatched intact from the office of origin without being separated or distributed in any way. Partly made-up matter comprises sacks made up by publishers for States or cities which require separation or distribution in the office of origin. Mixed matter is matter deposited in the post office by publishers totally unseparated.

The statistics from the New York post office show the per cent of mixed second-class mail received from publishers as only 5.07.

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A statement of the composition of fully made-up sacks received during June, 1916, at 40 post offices shows that 12.96 per cent were received made up by States and dispatched intact, 41.12 per cent were received made up for post offices, and 45.92 per cent were received made up by routes.

The distribution of second-class mail to railway post-office routes by publishers in accordance with alphabetical schemes or lists furnished by the department has been extended to include many additional publications. Efforts to increase the amount of mail so distributed and interest publishers in the matter have been, with few exceptions, successful, as publishers generally realize that the requirement is reasonable and results in expediting the delivery of their publication with greater regularity.

TERMINAL RAILWAY POST OFFICES.

The continued operation of the system of terminal railway post offices, which was established shortly after the inauguration of parcel post, has made it possible to distribute therein large quantities of parcel post and other mail, thus avoiding largely increased expenditures for railway post-office cars and railway postal clerks which would otherwise have been required. The advantage of these terminal railway post offices to the service is especially noticeable during the holiday season, furnishing an important means of preventing the congestion of mail in postal cars and in post offices during the season of heavy mails incident to the Christmas holidays.

RECLASSIFICATION.

During the fiscal year 10,083 railway postal clerks (about 54 per cent of the entire force) were promoted in salary not less than $100 each, as follows: 856 clerks of grade 1, at $900, were promoted to grade 2, at $1,000 per annum; 1 clerk of grade 1, at $900, was promoted to grade 5, at $1,300 per annum, being a restoration in grade under the reclassification act; 2,417 clerks of grade 2, at $1,000, were promoted to grade 3, at $1,100 per annum; 669 clerks of grade 3, at $1,100, were promoted to grade 4, at $1,200 per annum; 558 clerks of grade 4, at $1,200, were promoted to grade 5, at $1,300 per annum; 1 clerk of grade 4, at $1,200, was promoted to grade 6, at $1,400 per annum, being a restoration in grade under the reclassification act; 2 clerks of grade 4, at $1,200, were promoted to grade 7, at $1,500 per annum, being restorations in grade under the reclassification act; 1,494 clerks of grade 5, at $1,300, were promoted to grade 6, at $1,400 per annum; 1 clerk of grade 5, at $1,300, was promoted to grade 7, at $1,500 per annum, being a restoration in grade under the reclassification act; 3,167 clerks of grade 6, at $1,400, were promoted to grade 7, at $1,500 per annum; 354 clerks of grade 7, at $1,500, were promoted to grade 8, at $1,600 per annum; 531 clerks of grade 8, at $1,600, were promoted to grade 9, at $1,700 per annum; and 32 clerks of grade 9, at $1,700, were promoted to grade 10, at $1,800 per annum The aggregate expenditures for these promotions were $693,125, at an increase in the annual rate of expenditure of $1,009,200.

During the fiscal year 38 runs of railway postal clerks were placed in class A, 11 were placed in class B, and 7 in class C; 22 runs were

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raised from class A to Class B and 22 runs from class B to class C. One run was reduced from class C to class B and 17 runs were reduced from class B to A.

DIVISION OF FOREIGN MAILS.

COST OF SERVICE, WEIGHT OF MAILS, ETC.

The total cost of the foreign mail service during the fiscal year ended June 30, 1916, except for balances due foreign countries on account of intermediary transit of United States mails was $3,287,000.73, which is $172,000.75, or 5.51 per cent, more than the cost for the same items of the service for the previous year. The increase in the weight of the mails dispatched by sea during the year was 17.59 per cent over the previous year. The expense incurred on account of the intermediary transit of the mails can not be stated at this time, the war in Europe having caused unusual delays and difficulties in the assembling of the necessary data. Full details of the service will be found in the tables hereto annexed.

The appropriation for the transportation of foreign mails for the fiscal year of 1916 was $4,000,000; for balances due foreign countries, $681,800; and for assistant superintendent, Division of Foreign Mails, New York, N. Y., $2,500.

The amount reported by the auditor as expended from the above appropriation under accounts stated to September 8, 1916, are: For transportation, $2,965,415.90; for balances due foreign countries, $119,027.99; and for assistant superintendent, Division of Foreign Mails, New York, N. Y., $2,500.

The appropriations for the fiscal year of 1917 are: For transportation $3,800,000; for balances due foreign countries $681,700; and for assistant superintendent, Division of Foreign Mails, New York, N. Y., $2,500.

The amounts estimated as necessary for the fiscal year ending June 30, 1918, are:

For transportation	$3,900,000
For balances due foreign countries	681,700
For assistant superintendent, Division of Foreign Mails, New York, N. Y.	2,500
Total	4,584,200

The weights of the mails, including parcel post, dispatched by sea to foreign countries during the fiscal year were as follows:

	Grams.	Pounds.
Letters and postcards	1,221,280,755	2,692,921
Other articles	10,679,539,309	23,548,383
Total	11,900,820,064	26,241,304

An increase of 3,926,038 pounds or 17.59 per cent over 1915.

Based on a count made at United States exchange post offices during seven days in October, 1915, and seven days in April, 1916 it is estimated that the number of articles in the regular mails exchanged with all foreign countries (both by land and sea) during the fiscal

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year 1916 was 324,613,246 sent, an increase of 0.33 per cent over 1915, and 256,526,319 received, a decrease of 20.63 per cent under 1915; and that the amount collected as postage prepaid by the senders of such articles and as deficient postage collected of addressees in this country on unpaid and short-paid articles received from abroad was $8,863,458.11, an increase of 2.91 per cent over 1915, of which amount the postage collected on such articles exchanged with all countries other than Canada and Mexico is estimated to have been $5,942,241.07 an increase of 5.90 per cent over 1915.

The rate of compensation allowed under the general statute for the sea conveyance of United States mails by steamers of United States register not operated under the ocean mail act of 1891, is not exceeding the full postage on the mails conveyed, at present at the rate of 80 cents a pound for letters and post cards and 8 cents a pound for other articles; and to steamers of foreign register, 4 francs a kilogram (about 35 cents a pound) for letters and post cards and 50 centimes a kilogram (about 4½ cents a pound) for other articles, calculated on the net weights of the mails conveyed. For the conveyance of foreign closed mails the conveying steamers, whether under the United States or foreign flags, are compensated at the rate of 4 francs a kilogram for letters and post cards and 50 centimes a kilogram for other articles. The conveyance of all mails by American steamers operating under the ocean mail act of 1891 is paid for on a mileage basis, as determined by the act and depending on the speed and size of the steamers. Detailed statistics are shown in Table D.

CONTRACT OCEAN MAIL SERVICE.

The service was in operation on five routes, namely: From New York to Puerto Cabello, Venezuela; from New York to Maracaibo, Venezuela; from New York to Vera Cruz, Mexico; from New York to Liverpool, England; and from San Francisco to Sydney, Australia. The contract for service on route 57—New York to Plymouth, Cherbourg, and Southampton—which expired October 11, 1915, was renewed for a period of five years.

The total cost of contract service was $1,090,918, which is $185,860.84 less than the amount that would have been allowable at the present rates to the conveying steamers if they had not been under contract and had conveyed the same United States mails. In considering the cost of the contract service it should be borne in mind, however, that during the year foreign closed mails amounting to 146,140,742 grams (322,240 pounds) of letters and post cards, and 296,657,001 grams (654,129 pounds) of other articles, the conveyance of which in the ordinary course would have cost the department at the rate of 4 francs per kilogram for letters and post cards and 50 centimes a kilogram for other articles, a sum amounting to $141,448.05, were dispatched by the contract steamers without additional cost to the department. The net result, therefore, is that the contract service cost $327,308.89 less than if the conveying steamers had not been under contract, but had been paid on the basis of the weights of the mails at the rates regularly allowed to steamers of United States register not under formal contract.

In considering this subject it should be borne in mind further that for the 21 years, 1892 to 1912, inclusive the cost of the contract

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service was $8,056,115.18 more than it would have been if the steamers performing the service had not been under contract but had been paid on the weight basis at the rates allowed to noncontract steamers; that the fiscal year 1914 was the first year that the cost of the contract service was less than the conveying steamers would have received on the weight basis for conveying the same amount of mails; and that for the four fiscal years ended June 30, 1916, it was $461,114.83 less. The economy effected by utilizing the contract steamers to the fullest extent possible is self-evident, as all mail not dispatched by the contract steamers must be dispatched by noncontract steamers and its conveyance paid for on the weight basis, while the increased weight of the mail dispatched by the contract steamers does not increase their pay, which is on the mileage basis. The substantial saving effected by the increased use of the contract steamers has been accomplished by giving the matter the closest attention and dispatching by said steamers all mail which would not be expedited materially in delivery at destination by being dispatched by other steamers.

TRANSATLANTIC MAILS.

While the war in Europe caused some disarrangements in the trans-Atlantic mail service, service to each of the various European countries was maintained throughout the year. The department utilized the services of all steamers which could be used to advantage for the dispatch of the mails, including many steamers which under normal conditions are not used for the dispatch of the mails, so that notwithstanding the disturbed conditions brought about by the war mails for the various European countries have been dispatched with reasonable frequency and so routed as not to require transit through any country with which the country of destination of the mails was at war. The transmission as routed of some of the mails has been interfered with by some of the countries at war, a matter which is receiving appropriate attention through diplomatic channels. There was no interruption in the weekly sailings of the contract steamers of the American Line.

TRANSPACIFIC MAILS.

The regular contract service under the act of 1891 by the Oceanic Steamship Co. from San Francisco to Sydney, via Honolulu and Pago Pago, was increased from once every 28 days to once every 21 days, commencing October 26, 1915, with requirement for a call at Pago Pago and Honolulu on each of the trips to San Francisco as well as on each of the trips from San Francisco.

Mails for trans-Pacific destinations have been dispatched also by steamers of the three Japanese lines, Nippon Yusen Kaisha, Toyo Kisen Kaisha, and the Osaka Shosen Kaisha, sailing six or eight times a month from San Francisco or Seattle to Japan and China; by steamers of the Blue Funnel Line, sailing once in about every 28 days from Seattle to Japan and China; by steamers of the Union Steamship Co., sailing every 28 days from San Francisco to Australia via Tahiti and New Zealand; by the steamers of the Canadian-Australian Line, sailing every 28 days from Vancouver to Australia

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via Honolula, the Fiji Islands, and New Zealand; and also by the steamers of the Canadian Pacific Line, the fortnightly service of which from Vancouver to Japan and China, which was discontinued in August, 1914, was resumed during the past year. Irregular service was performed by other lines. The service of the Pacific Mail Steamship Co. was discontinued, the steamers formerly performing the service having been sold and put in service elsewhere.

CENTRAL AND SOUTH AMERICAN MAILS.

There have been no important changes during the year in the dispatches of mails to Central and South America, dispatches from New York and New Orleans having been made about as last year. The only contract service we have is that to Venezuela by steamers of the Red D Line. All other service is performed by noncontract steamers, the schedules of which are not subject to the department's control. The dispatches are reasonably frequent, but in many cases the sailings of the steamers occur on dates different from those originally scheduled.

MAILS FOR MEXICO.

During part of the year mail service with Mexico was interrupted on account of the insurrection in that country. The usual overland routes could not always be used and resort was had to the sea routes from New York, New Orleans, and Galveston, and United States ports on the Pacific. The contract service on route 69—New York to Vera Cruz via Havana and Progreso—was of much advantage when the overland routes could not be used, as mails were dispatched from New York by the steamers on said route and also via New Orleans and Key West to connect with the steamers at Havana.

SEA POST OFFICES.

International sea post offices were maintained during the year on steamers of the French Line between the United States and France, and American sea post offices on steamers of the American and White Star Lines between the United States and Great Britain, 107 trips having been made from New York and 113 trips having been made from Europe, during which 17,449,797 ordinary letters, 262,936 registered articles, and 2 813 sacks of newspapers, etc., were distributed. In addition to the employees furnished by the French administration this department provided a force of clerks ranging from 24 at the beginning of the year to 20 at the end of the year, the force of United States clerks having been reduced by 4. No sea post service was performed during the year on steamers of the North German Lloyd or Hamburg-American Lines.

Sea post offices were maintained also on the steamers of the Red D Line, New York and Porto Rico Line, and the Panama Railroad Steamship Line, between New York and Porto Rico and the Canal Zone, 168 trips having been made from New York, and 159 trips from Porto Rico and the Canal Zone, during which 10,876,900 ordinary letters, 70,664 registered articles, and 10,030 sacks of newspapers, etc., were distributed. This service is United States service solely and was performed by a force of 11 clerks.

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In sea post offices, when United States sea post clerks were in charge, among the number of articles mailed 240 were registered. The receipts from the sales of United States postage stamps during the year by sea post clerks amounted to $1,752.07 as compared with $2,393.96 during the year 1915.

The reduced operation of the sea post offices as above indicated has brought about a corresponding reduction in cost, the cost of the service for the year being $54,585.92, while the cost for the year 1915 was $66,306.17, and for the year 1914, $99,973.04.

NAVY MAIL SERVICE.

During the year postal facilities continued to be afforded to practically all the vessels of the Navy. On June 30, 1916, there were 144 Navy mail clerks and 34 assistants. There were 161 changes in personnel during the year.

The direct supervision of the Navy mail service by the assistant superintendent, Division of Foreign Mails, at New York, which has been continued, the improved equipment used and postal methods employed, as well as the transfer of all Navy mail clerk accounts to the office of New York and the designation of all money-order vessels as branches of that post office, have brought about a high standard of efficiency in the service. Further improvements will be made whenever practicable.

INTERNATIONAL PARCEL POST.

Extensions were made in the International Parcel Post Service during the year, parcel post service having been inaugurated with Argentina on October 15, 1915, and a parcel post convention was concluded with China, which became effective August 1, 1916. Improvements of the service and removing or minimizing hindrances to its use and growth have received special attention. Negotiations are being continued for the conclusion of conventions with Cuba, Portugal, Russia, Spain, Switzerland, and the French colonies of the Society Islands, and St. Pierre and Miquelon, with prospects of favorable results eventually, although the unsettled conditions consequent to the European war necessarily retard the negotiations.

During the year it was necessary to suspend the parcel post service between the United States and Austria, Hungary, Germany, and the Netherlands on account of the lack of necessary transportation facilities due to the war. At the end of the fiscal year, therefore, the service was not in operation to Austria, Belgium, Hungary, Germany, and the Netherlands. Notwithstanding the mentioned interruptions to the service, the weight of the parcel post mails dispatched from the United States to foreign countries during the fiscal year 1916 shows an increase of 87.25 per cent over the weight of the parcel post mails dispatched during the fiscal year 1915, which is gratifying evidence of the utility of the service and of its appreciation by the people. The increase in the weight of the parcel post mails dispatched to Central and South America was especially notable, the increase in those for Bolivia having been 144 per cent, for Brazil 148 per cent, for Chile 176 per cent, for Colombia 145 per cent, for Guatemala 101 per cent, for Peru 148 per cent, and for Central and South America

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as a whole 101.43 per cent. The weight of the parcel post mails received during the year shows an increase of 37.86 per cent over those received during the year 1915.

Counting China, there are now 53 countries and colonies with which we have parcel-post conventions, the general characteristics of which are as follows:

Postage rate, uniform at 12 cents a pound.
Limit of weight, uniform at 11 pounds.
Limit of size, uniform at 3 feet 6 inches greatest length, and 6 feet greatest length and girth combined, except Mexico and Colombia—2 feet greatest length and 4 feet greatest girth.

Statement 3 of Table D gives particulars of the parcels sent and received in the international parcel-post service.

PROPOSED REDUCED LETTER POSTAGE WITH COUNTRIES OF THE WESTERN HEMISPHERE.

The negotiations for the establishment of reciprocal letter rates of postage between the United States and the countries of the Western Hemisphere, of which mention was made in the report for last year, were continued, but without result, except that a convention was concluded with the Colony of British Guiana for a reciprocal domestic letter rate between that colony and the United States, which became effective January 1, 1916. The hesitancy of the countries concerned to agree to the department's proposals is no doubt due in part at least to the unsettled conditions due to the European War. The matter will continue to receive attention. Negotiations are also under way for the establishment of a 2-cent letter rate between the United States and New Zealand with very favorable prospects of success.

Very respectfully,

OTTO PRAEGER,
Second Assistant.

Hon. A. S. BURLESON,
Postmaster General

REPORT OF THE THIRD ASSISTANT POSTMASTER GENERAL.

POST OFFICE DEPARTMENT,
OFFICE THIRD ASSISTANT POSTMASTER GENERAL,
Washington, D. C., September 30, 1916.

SIR: I have the honor to submit the following report on the operations of this bureau for the fiscal year ended June 30, 1916.

POSTAL FINANCES.

SUMMARY FOR THE FISCAL YEAR.

The report of the Auditor for the Post Office Department for the fiscal year ended June 30, 1916, shows that the revenues of the Postal Service during that period, including the revenues from money order and postal savings business, amounted to $312,057,688.83, an increase of 8.63 per cent over the preceding year, compared with a

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decrease of 0.23 per cent in 1915 under 1914. The expenditures were $306,204,033.14, an increase of 2.56 per cent over the preceding year, compared with an increase of 5.29 per cent in 1915 over 1914.

The revenues exceeded the expenditures by $5,853,655.69. From the excess of revenues is deducted $24,419.62 allowed postmasters for losses of postal funds by fire, burglary, and other causes. The net audited surplus for the year is therefore $5,829,236.07.

THE REVENUES.

The audited revenues for the fiscal years 1916 and 1915, by quarters, with increase and per cent of increase, are as follows:

Quarter ended—	Fiscal year 1916.	Fiscal year 1915.	Increase.	Per cent of increase.
Sept. 30, 1915	$69,295,729.18	$65,877,035.40	$3,418,693.78	5.18
Dec. 31, 1915	84,564,447.21	77,372,812.78	7,191,634.43	9.29
Mar. 31, 1916	79,699,622.44	72,669,347.98	7,030,274.46	9.67
June 30, 1916	78,497,890.00	71,328,969.11	7,168,920.89	10.05
Total	312,057,688.83	287,248,165.27	24,809,523.56	8.63

OUTSTANDING OBLIGATIONS.

The audited expenditures of $306,204,033.14, reported above, include $297,637,128.87 for services performed and supplies ordered in the fiscal year 1916 and $8,566,904.27 in 1915 and prior fiscal years. They do not represent the full expense of conducting the Postal Service in the fiscal year 1916 because of the impossibility of paying within the fiscal year for all services performed and supplies ordered. It is the practice of the auditor to report the payments actually made within the year as the expenditures of the year on which report is made. However, statements have been obtained from the officers of the department having supervision over the various branches of the service, which show that the estimated cost of maintaining the service during the fiscal year 1916 was $306,817,025.60, including outstanding obligations at the close of the year amounting to $9,179,896.73. On this basis, therefore, the revenues of the service for the fiscal year 1916, after deducting losses on account of fire, burglary, etc., will exceed the expenses by $5,216,243.61.

THE SURPLUS.

The postal surplus for 1916 is the largest in the history of the department and the third in four successive fiscal years. The deficit in the fiscal year 1915 was caused by the decline in postal revenues that began in July, 1914, immediately preceding the outbreak of the European war, and continued in varying degree throughout the entire year. It is clearly apparent, therefore, that the Postal Service, if confronted with no abnormal conditions affecting its revenues, is self-sustaining.

There has recently been deposited with the Treasurer of the United States the sum of $5,200,000 in part payment of the surplus for 1916. Similar payments of $3,800,000 and $3,500,000 previously were made on account of the surpluses for 1913 and 1914, respectively. These funds are used for meeting the general expenses of the Government.

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GATHERING THE POSTAL REVENUES AND PAYMENT OF PUBLIC CREDITORS.

Under the supervision of this office there was paid into the Treasury of the United States during the year, to the credit of and for the use of the Postal Service, the sum of $161,989,226.43. The deposits were made principally by State depository postmasters, and represented the excess of receipts over expenditures at their own post offices and the excess receipts of post offices remitting to them. Of this amount $57,789,843.06 was gathered through the medium of national banks, $96,528,969.46 through subtreasuries, and $7,670,413.91 was deposited direct with the Treasurer at Washington. Against these deposits there were issued on the Treasurer of the United States by the Division of Finance 356,373 settlement warrants for $86,779,352.48 in payment of public creditors whose accounts are presented to and paid by the department at Washington. There were issued also 1,664 accountable warrants for $84,650,578 to disbursing postmasters designated by the department to pay the salaries of rural-delivery carriers, railway-mail clerks, inspectors, and other employees of the service.

PAYMENTS OF BALANCES DUE POSTMASTERS.

There were issued during the year on State depository postmasters 5,498 drafts for $80,848.05 in favor of former postmasters, and in a few instances to those in office, in payment of balances found to be due them by the Auditor for the Post Office Department in the settlement of their accounts.

RECEIPT AND DISPOSITION OF MONEYS SENT DIRECT TO THE DEPARTMENT.

There was received during the year by the superintendent, Division of Finance, funds amounting to $1,012,212.62 that came direct to the department, including collections by post-office inspectors for losses in the mails. A statement showing the sources from which the funds were received and the manner in which they were disposed of will be found in Table 1, page 191 of this report. The funds received include $12,198.10, proceeds of the sale of old material of the Post Office Department; $3,067.80 derived from the sale of post-route maps and charts; and $4,284.50 from the sale of parcel-post maps and guides.

FALSE RETURNS OF BUSINESS AND OTHER DELINQUENCIES OF POSTMASTERS AFFECTING THE POSTAL REVENUES.

In the performance of duties incident to the consideration of charges preferred against postmasters for rendering false returns of cancellations, diversion of mail matter, unlawful disposition of stamps and stamped paper, and failure to deposit postal funds, and the adjustment, when possible, of cases of boycott against postmasters, 1,117 cases were examined and disposed of during the year. Of these, 732 cases were closed without action after considering the report of the investigation conducted by the inspection service, 253 cases were handled by correspondence, and in 132 cases the auditor was authorized to charge back $20,699.01 against the postal accounts of the postmasters involved to cover losses sustained by the department, $15,567.54 of which previously had been collected by the inspectors who investigated the cases.

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THE POSTAL SAVINGS SYSTEM.

INCREASE IN THE AMOUNT THAT MAY BE ACCEPTED FROM A POSTAL-SAVINGS DEPOSITOR.

The act of Congress of May 18, 1916, amending the original postal-savings act of June 25, 1910, marked the beginning of a new era in the history of the postal savings service. Under the original law no one was permitted to deposit more than $100 in any one calendar month or have a balance to his credit of more than $500. These limitations greatly retarded the growth of the system and restricted the scope of its usefulness, it having been estimated that as much money was refused at the post offices because of the limitations as was accepted. By the terms of the amendment a person may now deposit any number of dollars, and at any time, until the balance to his credit amounts to $1,000. The effect of the liberalizing legislation was an immediate and pronounced increase in postal-savings deposits. As the advantages of the new law become known the accumulated hidden savings of the country flow to the postal banks and are there restored to the circulating medium.

GROWTH OF THE SYSTEM.

On June 30, 1916, at the close of the fiscal year, postal-savings deposits amounted to $86,019,885, standing to the credit of 602,937 depositors, an average of $142.67 for each depositor. Compared with the returns for the service at the close of the previous fiscal year there was a gain of $20,335,177 in the amount on deposit, 77,523 in the number of depositors, and $17.65 in the average for each depositor.

The growth of the system and a summary of transactions from the date of its inauguration on January 3, 1911, to the close of the fiscal year ended June 30, 1916, by months, is shown in Table 2, page 192 of this report.

FINANCIAL CONDITION.

Following is the balance sheet of the system showing its financial condition on June 30, 1915, and June 30, 1916, the relation of interest-earning resources to interest-bearing liabilities, and the manner in which funds to meet liabilities to depositors are held. To facilitate comparison the increase or decrease in each item for the year also is given.

Balance sheet showing comparatively the resources and liabilities of the Postal Savings System on June 30, 1915, and June 30, 1916, the increase or decrease in each item during the period reported, and related data.

Items.	Balance June 30, 1915.	Increase during year.	Decrease during year.	Balance June 30, 1916.
RESOURCES.				
Cash working balances, interest earning:				
Depository banks—Funds on deposit to the credit of the board of trustees	$60,042,033.56	$20,679,949.05		$80,721,982.61
Investments, interest earning:				
Treasurer of the United States—Postal-savings bonds purchased by the board of trustees and lodged with the Treasurer	954,040.00	604,460.00		1,558,500.00

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Balance sheet showing comparatively the resources and liabilities of the Postal Savings System on June 30, 1915, and June 30, 1916, the increase or decrease in each item during the period reported, and related data—Continued.

Items.	Balance June 30, 1915.	Increase during year.	Decrease during year.	Balance June 30, 1916.
RESOURCES—continued.				
Cash working balances, noninterest earning:				
Postmasters—Undeposited funds, including balances due from and to late postmasters	$147,364.10	$272,254.59		$419,618.69
Treasurer of the United States—				
Funds deposited with the Treasurer, returnable to depository offices and banks	829,744.63		$665,485.00	164,259.63
Funds withdrawn for the payment of late postmasters' balances	1.14	.06		1.20
Funds withdrawn for the purchase of postal-savings bonds for depositors	840,630.00		839,580.00	1,050.00
Secretary of the Treasury—Interest on investments in postal-savings bonds, computed to June 30 and payable July 1	11,925.50	7,555.75		19,481.25
Depository banks—Interest on deposits, computed to June 30 and payable July 1	736,426.24	194,065.81		930,492.05
Cash reserve balances, noninterest earning:				
Treasurer of the United States—				
Funds withdrawn for a cash reserve	3,158,623.83	553,763.08		3,712,386.91
Funds (counted as part of the reserve) of States and Territories in which no banks are now willing to receive postal-savings deposits	35,815.73	27,198.20		63,013.93
Total resources	66,756,604.73	22,339,246.54	1,505,065.00	87,590,786.27
LIABILITIES.				
Demand liabilities, interest bearing:				
Depositors—Outstanding postal-savings certificates	65,684,708.00	20,335,177.00		86,019,885.00
Demand liabilities, noninterest bearing:				
Depositors—				
Outstanding savings cards and stamps	56,206.10	12,339.50		68,545.60
Matured interest due on outstanding postal-savings certificates	525,522.60	363,829.42		889,352.02
Matured interest not claimed on certificates paid	1,004.02	325.26		1,329.28
Postal Service—Balance due for net interest and profits	12,294.40		8,117.51	4,176.89
Earnings held subject to monthly charges for matured interest and losses, and pending periodical settlements with Postal Service for net interest and profits	476,869.61	130,627.87		607,497.48
Total liabilities	66,756,604.73	20,842,299.05	8,117.51	87,590,786.27
Excess of interest-bearing liabilities over interest-earning resources	[1] 3,823,134.44		$990,432.05	[1] $2,832,702.39
Manner in which funds to meet liabilities to depositors are held.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
Cash working balances	93.74	0.13		93.87
Cash reserve balances	4.82		0.48	4.34
Investments in bonds	1.44	.35		1.79

[1] The value of certificates surrendered for bonds to be issued July 1, 1915, and July 1, 1916, $865,500 and $906,700, respectively has been deducted, the interest liability on these certificates having terminated on June 30. Matured interest on bank deposits, amounting on June 30, 1915, and June 30, 1916, to $736,426.24 and $930,492.05, respectively, is carried as noninterest-earning resources and serves to increase the excess of interest-bearing liabilities. These items become interest-bearing on July 1, when they are credited by the banks to the balance then standing to the credit of the board of trustees.

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DEPOSITORY POST OFFICES.

On June 30, 1916, postal-savings facilities were available at 7,701 post offices designated as postal-savings depositories, of which 6,847 were of the presidential grade and 854 of the fourth class. The service also was available at 720 branches and stations, making a total of 8,421 depositories in operation on that date.

Difficulties attending the transfer of funds having been satisfactorily solved, the service was extended to Alaska in April, 1916, and made available at eight post offices, namely, Juneau, Fairbanks, Douglas, Ketchikan, Petersburg, Skagway, Treadwell, and Wrangell.

The number and class of post offices designated as postal-savings depositories in operation on June 30, 1916, by States, is shown in Table 3, page 194, of this report.

BANKS QUALIFIED TO RECEIVE DEPOSITS OF POSTAL-SAVINGS FUNDS.

On June 30, 1916, 5,634 banks were qualified to receive deposits of postal-savings funds, including 3,547 national banks, 1,257 State banks, 262 savings banks, 547 trust companies, and 21 "organized" private banks. The act of May 18, 1916, increasing the amount that may be accepted from a postal-savings depositor, also modified specifically the provision in the Federal reserve act of December 23, 1913, which prohibited the deposit of postal-savings funds in any bank not belonging to the Federal reserve system. As the matter now stands member banks of the Federal reserve system in the city, town, village, or locality where the postal-savings deposits are made are given preference, but if no member banks exist, or existing fail to qualify to receive the deposits, then other banks otherwise eligible may qualify and receive them.

In the original postal-savings act of June 25, 1910, authority was given the board of trustees to withdraw not exceeding 30 per cent of postal-savings deposits for investment in bonds or other securities of the United States. The act of May 18, 1916, annuls this authority and in lieu thereof provides that if at any time the postal-savings deposits in any State or Territory shall exceed the amount which the qualified banks therein are willing to receive under the terms of the act, and the excess is not required to make up the 5 per cent reserve fund, all or any part of the excess may be invested in bonds or other securities of the United States.

The number and class of banking institutions qualified as depositories for postal-savings funds on June 30, 1916, by States, is shown in Table 4, page 195 of this report.

POSTAL-SAVINGS DEPOSITS IN THE SEVERAL STATES.

The amount to the credit of depositors at the beginning of the fiscal year 1916, the deposits and withdrawals during the year, and the amount to the credit of depositors and on deposit in banks at the end of the year, by States, is shown in Table 5, page 196 of this report.

POST OFFICES HAVING LARGE DEPOSITS.

A study of statistics on the postal-savings business of post offices having large deposits is interesting. Approximately two-thirds of

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the total postal-savings deposits on June 30, 1916, were held at the 78 offices having $100,000 and over on deposit. The number of depositors, the amount on deposit, and the average principal per depositor at these offices on June 30, 1915, and June 30, 1916, is shown in Table 6, page 197 of this report.

The increase in deposits during the year at a number of these offices was phenomenal. At Uniontown, Pa., the deposits increased 337 per cent; at Waterbury, Conn., 270 per cent; at Bridgeport, Conn., 132 per cent; at Wilmington, Del., 122 per cent; at Pueblo, Colo., 109 per cent. Nineteen other offices showed gains ranging from 60 to 97 per cent.

SAVINGS CARDS AND STAMPS.

The sale of 10-cent postal-savings cards and stamps to the public continues to afford a convenient means to save small amounts of money systematically. The service is especially adapted to the needs of school children. Since the system has been in existence savings cards and stamps to the value of $821,582.60 have been sold and $753,037 cashed or converted into interest-bearing deposits. Cards and stamps to the value of $181,172.50 were sold in the fiscal year 1916 and $168,833 cashed or converted. The value of the outstanding cards and stamps at the close of the year was $68,545.60.

POSTAL-SAVINGS BONDS.

Under a privilege accorded by the postal-savings act a depositor may exchange his deposits in amounts of $20 and multiples thereof for 2½ per cent United States postal-savings registered or coupon bonds. Deposits so exchanged are not counted as a part of the maximum of $1,000 which a depositor may now have to his credit. Bonds of this kind were issued during the year to the amount of $1,844,700, of which $1,694,280 were in the registered form and $150,420 were coupon bonds. Altogether $7,954,640 in registered and $1,197,160 in coupon bonds have been issued since the system has been in existence, a total of $9,151,800. A noteworthy fact is that approximately 86 per cent of the bonds were, on request, issued in the registered form, indicating they were purchased for permanent investment.

The board of trustees is empowered to invest postal-savings funds in these bonds, and they are purchased at par on the application of any holder. Bonds to the value of $604,460 were purchased during the fiscal year 1916, the total amount invested in them being $1,558,500.

The various issues of bonds from the time the system began operations to July 1, 1916, is shown in Table 7, page 198 of this report.

INTEREST AND PROFITS COVERED INTO POSTAL REVENUES.

In accordance with a requirement of the postal-savings act interest and profit accruing from the deposit or investment of postal-savings funds are first applied to the payment of interest due to depositors and the excess thereof, if any, is covered into the Treasury of the United States as a part of the postal revenue. Up to the close of the fiscal year 1916 there has been paid into the Treasury $2,132,912.08 from this source.

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PAYMENT OF BALANCES TO THE CREDIT OF DECEASED DEPOSITORS.

Provision is made in the regulations of the Postal Savings System for the payment of balances standing to the credit of deceased depositors, and those who have been adjudged to be mentally incompetent, to the executor, administrator, or other legal representative of the estate of the depositor. When the amount on deposit is small, payment without administration is made to the person or persons who, under the laws of the domicile of the decedent, would be entitled to receive it if administration were had. During the fiscal year just closed 2,102 claims have been paid under these regulations, aggregating $331,152.38. Since the system was established claims aggregating 6,234 in number and $880,816.50 in amount have been paid.

Of the claims adjusted during the year 24 related to the accounts of deceased depositors of foreign birth who were survived by heirs residing abroad. In 14 cases payment was made direct to the heirs by the use of international money orders; in the remaining 10 cases payment was made in this country, on behalf of the heirs, to the consular representatives of the countries of which the depositors were subjects. Many difficulties heretofore encountered in effecting payment abroad to the heirs of foreign-born depositors were eliminated upon the rendering of a decision by the Comptroller of the Treasury on April 12, 1916, making it possible to effect payment in such cases to the consular officers in the United States having jurisdiction, by virtue of their exequaturs, over the estate of the deceased depositors holding these accounts.

EFFORTS TO REACH FOREIGN-BORN POPULATION BY CIRCULARS IN MOTHER TONGUES.

According to the census of 1910 there were 13,515,886 persons in the United States of foreign birth. Efforts are being made to reach these people with circulars of information about the Postal Savings System in their mother tongues. Circulars in English, Bohemian, Bulgarian, Chinese, Croatian, Danish-Norwegian, Finnish, French, German, Greek, Hungarian-Magyar, Italian, Japanese, Lithuanian, Polish, Portuguese, Russian, Ruthenian, Serbian, Slovak, Slovenian, Spanish, Swedish, and Yiddish already have been produced and widely distributed. Other languages will be covered as the need is apparent. The foreign-born population whom the circulars already produced are designed to reach comprise approximately 97 per cent of the entire foreign-born population of the United States.

The opportunity to learn of the conditions under which they may safely keep their money is helpful to those who have difficulty with or are ignorant of the English language, and the giving of information about the Postal Savings System in their mother tongue has been the means of adding many of our foreign-born residents to the roll of depositors.

THE POSTAL MONEY-ORDER SYSTEM.

SUMMARY FOR THE FISCAL YEAR.

The money-order transactions of the fiscal year 1916 marked the complete recovery of domestic business from the setback experienced in the preceding year. The usual healthy growth in volume of domestic business is evidenced by the money-order statistics shown in Tables

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8 and 9, on pages 198 and 199 of this report. On the other hand, the same tables show a marked decrease in the number and amount of international money orders issued, due to the prevailing unfavorable circumstances affecting the payment of money orders in European countries.

ESTABLISHMENT OF MONEY-ORDER OFFICES.

The money-order service was made available during the fiscal year 1916 at 1,296 post offices not previously equipped for the purpose. The designations were made upon the requests of postmasters or patrons of the offices, or upon information reaching the department from other sources that the service was needed. For various causes money-order business was discontinued at 940 offices during the same period, leaving 56,026 money-order offices in operation at the close of the year, a net gain over the preceding year of 356 offices.

The international money-order service was made available at 329 offices during the year and discontinued at 24, the fiscal year closing with 11,518 money-order offices authorized to transact international business.

INVALID MONEY ORDERS.

According to the provisions of the act of January 27, 1894, money orders are invalid after one year from the last day of the month of issue, and the amount of orders remaining unpaid at that time is required to be paid over to the postal-revenue account. On application to the department, however, an invalid order may be paid by warrant on the Treasurer of the United States. During the year five payments, aggregating $1,309,045.72, were made to the postal-revenue account covering orders issued after July 1, 1913, and 10,632 warrants for $301,405.02 in payment of invalid orders were issued. In 1915 the payments to the postal-revenue account amounted to $1,686,573.15, and 10,777 warrants for $208,025.85 were issued.

MONEY-ORDER REVENUE.

The revenue derived from the transaction of money-order business is deposited with the assistant treasurer of the United States at New York for the use of the Postal Service, in accordance with section 4050 of the Revised Statutes. From the gross sum derived from money-order fees, gain on the purchase of foreign exchange, and other items of miscellaneous income, certain deductions are made, principally (1) a commission of 3 cents for each order issued at post offices of the third and fourth classes, as provided by the act of January 27, 1894, amounting this year to $2,037,247.53, and (2) an allowance to certain foreign administrations for the payment of money orders issued in the United States on these countries, in accordance with provisions of conventions made with them, amounting this year to $153,648.80.

The net revenue for the fiscal year 1916, by quarters, was as follows:

Quarter ended—	
Sept. 30, 1915	$1,734,006.34
Dec. 31, 1915	1,961,909.51
Mar. 31, 1916	1,588,793.03
June 30, 1916	1,536,790.87
Total	6,821,499.75

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RESERVES AND NEW YORK CREDITS.

The amount of surplus money-order funds which postmasters are authorized to withhold from deposit, in order that payment of money orders may promptly be made, is known as a reserve. At the close of the fiscal year the amount so withheld amounted to $4,847,330, an increase of $288,895 over 1915.

In addition to the reserve, postmasters may be granted a credit with the postmaster at New York, against which they may draw when funds are needed to effect payment of orders promptly. At the close of the year 7,468 postmasters were authorized to draw against credits set up in this manner. During the year 55,238 drafts for $38,949,114.13 were paid by the postmaster at New York, as compared with 55,176 drafts for $37,302,890.59 in 1915.

COMPLAINTS OF IMPROPER PAYMENTS.

Although the greatest care is exercised in the payment of money orders, complaints of improper payments occasionally are made. In every case an investigation is conducted. The success attending these investigations is evidenced by the following summary. During the past year 891 cases, involving $14,448.91, were investigated. In 437 instances, involving $7,095.58, the money was recovered from persons not entitled to it. In 186 cases, involving $3,495.21, the investigations disclosed that the orders were properly paid and that there was no cause for complaint. Lack of care on the part of the issuing and paying postmasters resulted in charging against them 244 money orders, amounting to $3,163.22. The fault of remitters and payees in 13 cases resulted in charging against them amounts aggregating $262.41. In the remaining 11 cases, involving $432.49, it was found to be impossible to recover the money from the persons to whom it had been paid, and as neither the postmasters, the remitters, or the payees were found to be legally at fault the department assumed this comparatively small loss.

FOREIGN EXCHANGE.

The conditions governing the purchase of bills of exchange with which to settle balances due foreign countries on money-order account were much the same as in the preceding year. The rates for bills on Norway, Denmark, Sweden, and the Netherlands were during the greater part of the year above the conversion rate for money orders sold, thus imposing a loss upon the money-order system in settling balances in favor of these countries. For bills on the other European countries, however, more favorable rates were obtained. Notwithstanding the unfavorable rates on the countries specified it is noteworthy that the gain realized on the purchase of exchange was the largest in the history of the money-order service. The total outlay for the purchase of exchange was $26,375,438.02, on which a gain of $1,871,170.96 was realized. From this should be deducted, however, losses amounting to $169,394.50, leaving a net gain for the year of $1,701,776.46, compared with a net gain of $760,733.98 in 1915. In the few instances where the balances were in favor of the United States the foreign countries forwarded bills

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of exchange in payment amounting to $8,886,089.80, which was $2,291,560.57 less than the amount received for the same purpose in 1915.

SURVEY OF THE SYSTEM.

In my last annual report it was stated that further reference would be made to the findings and recommendations of the committee appointed by the Postmaster General to make a survey of the postal money-order service for the purpose of ascertaining its condition and advancing its efficiency and ecomomical administration.

A preliminary report of the committee was published during the year in pamphlet form under the title, The United States Postal Money-Order System, embodying its findings with respect to the condition of the system. The data gathered by the committee and presented in this pamphlet are exhaustive. They cover practically every phase of money-order activities and are arranged with a view to being used by the committee in dealing with the present needs of the service and to serve as the basis of a current record of development and progress. Another purpose of the pamphlet is to provide a book of reference that may be used by those employed in money-order work to acquire a broader and more intimate knowledge of the service, and in furtherance of this purpose copies were distributed among the employees of the money-order division and sent to all first and second class post offices.

It appeared from the information gathered that one of the heaviest items of expense at the larger money-order offices was the assorting and filing of coupons of paid orders for the purpose of maintaining a record for answering inquiries regarding paid orders and acting on applications for duplicates. To improve this work, and to reduce the expense if possible, the committee made a careful investigation as to the practicability of adapting the electrical accounting system in use in the office of the Auditor for the Post Office Department to the work of reporting paid orders at the larger post offices, and compiling at the same time an easily consulted index to the coupons of the paid orders that would make the assorting of them unnecessary. The experiments conducted demonstrated conclusively that the cards prepared in the office of the auditor to show the particulars of paid money orders could just as well be prepared in the post offices, used in the preparation of "paid lists," sorted according to sequence of issuing office numbers for the purpose of securing an index to the coupons of paid orders, and then forwarded to the auditor to be used by him in lieu of the cards that he otherwise would produce. Based on these demonstrations, new accounting methods for reporting and recording paid money orders were worked out and installed by the committee in the New York, Philadelphia, and Boston post offices, where they are now in successful operation with a saving to the Government conservatively estimated at $100,000 annually. It is the intention of the committee to extend the plan to other of the larger post offices as rapidly as possible. It is not believed, however, that the expense attending the installation will be justified at offices paying less than 100,000 money orders monthly.

The committee is continuing its study of the data on the cost of the various money-order operations with a view to improving the service and reducing the costs to the minimum consistent with efficient service.

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COMMEMORATION OF THE SERVICES OF THE FIRST SUPERINTENDENT OF THE MONEY-ORDER SYSTEM.

The act of May 17, 1864, creating the money-order service, provided for the appointment of a superintendent and a small clerical force. Dr. Charles F. MacDonald, often called "the father of the money-order system," was appointed as its first superintendent and served in that capacity until July 7, 1893. Dr. MacDonald was a distinguished public servant. He was endowed with a brilliant mind and unusual executive ability and devoted the best years of his life to an unselfish endeavor to make of the system a great and effective institution for the promotion of the public convenience and welfare. On his death in 1902 it was found that he had bequeathed to the United States $2,000 to be used by the Postmaster General for the improvement of the money-order service.

The Congress formally accepted the gift in an act approved October 22, 1913. The commission appointed by the Postmaster General in furtherance of the act filed its report during the past year, and, after reciting the history of this unusual gift, concluded with a recommendation that a vignette of Dr. MacDonald be placed on the money-order draft forms used generally by postmasters throughout the country for drawing on their authorized credits with the postmaster at New York, and on the check forms used by the department for drawing against funds deposited to the credit of the Postmaster General in the New York subtreasury. This action, it was stated, would make thousands of people familiar with Dr. MacDonald's likeness and serve effectually to perpetuate his memory. The recommendation of the commission was approved by the Postmaster General, and a portrait of Dr. MacDonald now appears on these forms.

CLASSIFICATION OF MAIL MATTER.

RECEIPTS FROM POSTAGE.

The principal source of the postal revenues is the postage paid on mail matter. The receipts from this source during the last fiscal year amounted to $287,001,495.13, or 91.97 per cent of the total revenues, an increase of 8.59 per cent over the receipts of the previous year. Of this amount, $20,174,973.93 was derived from mailings of second, third, and fourth class matter without stamps affixed, the postage being collected in money; the remainder, $266,826,521.20, was derived from mailings of the various classes on which the postage was paid by means of stamps.

SECOND-CLASS MATTER.

The weight of mailings of newspapers and periodicals as second-class matter at the cent-a-pound rate and free in the county of publication aggregated 1,202,470,676 pounds during the fiscal year 1916, an increase of 93,184,891 pounds, or 8.4 per cent over the preceding year. The free-in-county mailings amounted to 64,117,674 pounds. The mailings at the cent-a-pound rate amounted to 1,138,353,002 pounds, on which $11,383,530.02 postage was collected. The large increase in such mailings, while in harmony with the general expansion of postal business resulting from the widespread prosperity enjoyed by the Nation is, nevertheless, regarded as remarkable

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in view of the heavy advance in the cost of print paper. The weight of mailings of second-class matter, by States, is shown in Table 11, page 200 of this report.

On June 30, 1916, there were 11,191 post offices at which publications were entered as second-class matter. Fifty of these offices having the largest mailings collected 79.75 per cent of the total postage paid at the cent-a-pound rate; the remaining 11,141 offices collected but 20.25 per cent.

Statements of ownership, management, circulation, etc., of newspapers and other periodical publications of the second class, required by the act of August 24, 1912, to be filed semiannually not later than the 1st day of April and the 1st day of October, were submitted by approximately 29,000 publications.

During the fiscal year 5,243 applications were received for admission of publications to the second class of mail matter, for change in title, frequency of issue, or office of publication. The number favorably acted on was 4,582, while 661 were denied. During the same period the issuance of 4,176 publications having a second-class status was discontinued, leaving 29,872 publications passing in the mails on June 30, 1916, at the second-class rates of postage, a net increase of 406 over the previous year. Permits to mail second-class publications at the rates applicable to second-class matter were issued during the year to 258 news agents and 87 permits were canceled, leaving 2,887 news agents' permits outstanding on June 30, 1916.

CHANGES IN POSTAGE RATES AND LIMIT OF SIZE FOR PARCEL-POST MATTER.

Although the radial distances of the first and second zones are only 50 and 150 miles, respectively, there are numerous instances throughout the country where it is necessary, owing to the topography or indirect routes of transportation, to carry parcels much greater distances between offices located within these zones. In such cases the former rate of 5 cents for the first pound and 1 cent for each additional pound was found to be wholly inadequate to cover the cost of the service rendered. A special rate of 6 cents for the first pound and 2 cents for each additional pound was adopted and became effective on September 1, 1915, for parcels subject to pound rates when sent to offices within the first and second zones where the distance over the shortest regular mail route is 300 miles or more. The new rate is bringing in receipts more nearly commensurate with the cost of the service and patrons affected by the change look upon it as reasonable.

The change in the limit of size for fourth-class or parcel-post mail, increasing from 72 inches to 84 inches the maximum measurement for the length and girth combined of mailable parcels, which went into effect at the beginning of the last fiscal year, has resulted in enlarging the usefulness of the parcel post and has developed considerable additional business.

INCREASED WEIGHT LIMIT FOR FIRST-CLASS MATTER.

The limit of weight of first-class matter was increased by the act of May 18, 1916, from 4 pounds to that applicable to fourth-class or parcel-post mail. Packages of first-class matter may now be accepted

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for mailing up to 50 pounds in weight when for delivery within the first and second zones, and up to 20 pounds when for delivery within the other zones. A provision of the act referred to prohibits the acceptance for mailing under the penalty privilege of any article or package exceeding 4 pounds in weight unless it comes within certain specific exceptions. Accordingly, official matter weighing more than 4 pounds and not included in the exceptions can not be accepted free under a penalty envelope or label, but may, if within the prescribed limits of weight, be sent under postage paid at the appropriate rate.

MAILINGS WITHOUT STAMPS AFFIXED.

During the fiscal year postage to the amount of $8,791,443.91 was collected in money on mailings of second, third, and fourth class matter without stamps affixed, under permit, an increase of $1,264,704.19, or 16.8 per cent, over the amount collected during the previous year.

The act of May 18, 1916, reduced the minimum number of identical pieces of third and fourth class matter which may be accepted for mailing without stamps affixed, the postage being paid in money, from 2,000 to 300 and 250, respectively. It also extended the privilege to such second-class matter, mailed in quantities of not less than 300 identical pieces, as was previously required to have the postage paid with stamps affixed, and provided for the acceptance without stamps affixed of money and securities mailed by the Treasury Department at the first or fourth class rate. These modifications and extensions will enable many persons and concerns to avail themselves of the advantages of the permit system who could not formerly do so because the quantity of their mailings was less than the prescribed minimum number of 2,000 pieces. The Postal Service, too, will be benefited, as it will no longer be necessary to cancel the postage stamps on such matter.

INCLOSURE OF HIGHER CLASS MATTER WITH A LOWER CLASS FOR MAILING AT LOWER RATE.

There arose during the fiscal year 904 cases involving violations of the statute making it an offense, punishable by a fine of not more than $100, to conceal or inclose matter of a higher class in that of a lower class for the purpose of evading payment of the higher postage rate properly chargeable. In the previous year there were 757 cases. It developed upon inquiry and investigation that 872 of the apparent violations were not willful, but due to inadvertence or misunderstanding. In 29 cases the mailers were unknown and could not be located. In 3 cases, resulting in prosecutions, fines were imposed by the court.

WINDOW ENVELOPES.

There has come into use in recent years what is commonly known as the window envelope—that is, an envelope having a transparent area in its face through which the address written on the inclosure may be seen. Since these envelopes make unnecessary the work of addressing, required when ordinary envelopes are used, and at the same time reduce the likelihood of erroneous addresses, their use is of considerable advantage to business concerns and others. When window envelopes first came into use it was found that the addresses frequently were written indistinctly, the windows in some instances

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were of a low degree of transparency, and many large business concerns adopted the use of dark stationery of various colors. In some instances the use of colored stationery and colored windows made the addresses on the inclosures difficult to read. This led to the issuance of regulations permitting the use of such envelopes only under certain reasonable conditions, principally that they must have uncolored windows of a high degree of transparency, that white stationery or that of light tints only shall be used, that the name and address of the sender must be placed in the upper left corner, and that the name and address of the addressee must be written plainly and boldly, preferably in typewriting, with ink of a dense black or other strongly contrasting color. In the enforcement of these requirements, which are designed to remove the objectionable features pointed out, the department has had the hearty cooperation of manufacturers and users of window envelopes.

PRODUCTION, DISTRIBUTION, AND REDEMPTION OF STAMPED PAPER.

SUMMARY FOR THE FISCAL YEAR.

In the fiscal year 1916 the sales of postage stamps and other stamped paper amounted to $277,728,025.20, an increase of $21,521,481.49, or 8.4 per cent, above the sales of the fiscal year 1915. These are the greatest sales and the largest increase ever recorded. If the present rate of sales is continued, the revenue from stamped paper should reach $300,000,000 in the fiscal year 1917.

The per capita consumption of postage stamps last year was $2.68. In the fiscal year 1857, the first full year in which prepayment of postage by means of stamps was compulsory under the act of March 3, 1855, the per capita consumption was 19 cents. The increase of population in this period has been 257 per cent; of postage stamp consumption 4,968 per cent. The great increase in the use of the mails thus indicated constitutes a striking exposition of the advance of education and of commerce in the United States.

A summary of transactions in stamped paper for the fiscal year 1916 follows:

Postage stamps and other stamped paper on hand in post offices July 1, 1915	$104,035,823.48
Stamped paper charged to postmasters	287,352,176.84
Stamped paper transferred from post offices	1,095,865.66
Adjustment of stamped paper purchased by Navy mail clerks from postmasters	1,358.05
Total	392,485,224.03
Sales by postmasters, July 1, 1915, to June 30, 1916 [1]	277,728,025.20
Stamped paper redeemed by the department from postmasters	1,314,041.13
International reply coupons redeemed by the department	2,628.75
Dead-letter bills	12,801.65
Stamped paper transferred to post offices	1,095,012.64
Stamped paper on hand in post offices June 30, 1916	112,332,714.66
Total	392,485,224.03

[1] The sales reported by this office differ somewhat from those reported by the Auditor for the Post Office Department, the difference being due to credits allowed by the auditor to postmasters on account of losses by fire, burglary, and other casualties; to the excess revenue gained in sales of stamped envelopes and newspaper wrappers singly and in odd quantities, an item which is stated by postmasters directly to the auditor and not to this office; to the adjustment of certain differences between the stamp and postal accounts; and to the adjustment in postal accounts of certain debits and credits which can not be entered in stamp accounts. These differences are all reconciled between the two offices quarterly and annually.

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The number of postage stamps, postal cards, stamped envelopes, newspaper wrappers, international reply coupons, and postal-savings cards and stamps issued by the department to postmasters was 14,650,243,326, an increase of 590,191,237, or 4.2 per cent.

EFFECT OF THE WAR UPON STAMP SALES.

The reduction in stamp sales which followed the outbreak of war in Europe, and the subsequent recovery in the sales, was noted in my report for the fiscal year 1915. The improvement continued through 1916, as shown by the following table:

Quarter ended—	Increase.	Percentage.
Sept. 30, 1915	$1,783,893.53	3.01
Dec. 31, 1915	6,309,444.50	9.04
Mar. 31, 1916	6,379,946.21	9.87
June 30, 1916	7,048,197.25	11.25

REQUISITIONS FILLED.

In 1916 the department filled 931,091 requisitions for stamps and other stamped paper, an increase of 5,480, or 0.59 per cent. The daily average was 3,052 requisitions, compared with 3,035 in 1915.

COILED STAMPS.

The public demand for stamps in coils of 500 and 1,000 showed a marked increase. The number of coils issued was 1,924,908, which was 333,446, or 21 per cent, more than in 1915. This new form of stamp issue has met a cordial welcome on the part of users of stamps in quantities, who have found the coils much more convenient to handle than stamps in sheets.

STAMP BOOKS.

In 1916 the department issued 28,005,930 stamp books, an increase of 226,130, or 0.81 per cent.

STAMPED ENVELOPES.

The stamped envelopes and newspaper wrappers issued to postmasters in 1916 numbered 1,853,791,461. Of these, 1,273,312,111, or 68.68 per cent, bore printed return cards, and 580,479,350, or 31.32 per cent, were plain. The gross selling value was $36,875,445.44.

Postmasters accounted for a total of $131,625.90 arising from gains in fractions of a cent when stamped envelopes and newspaper wrappers were sold in odd quantities.

NEW STAMPED ENVELOPES.

The department has adopted a 2-cent embossed stamp of new design for the stamped envelope. It is in form of a circle about

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1.1 inches in diameter. In the center is embossed the head of Washington in profile, looking to the left. The sides and upper portion of the border carry the words "United States Postage" in white capital letters, and within the border beneath the head is the word "cents," with the numeral "2" on each side inclosed in a small white circle.

The new envelopes were first placed on sale December 20, 1915.

POSTAL CARDS.

The number of postal cards issued to postmasters in the fiscal year 1916 was 1,047,894,800. The value of these cards was $10,784,307. The engraving of new steel printing plates offered a favorable opportunity to make certain needed alterations in the No. 6 1-cent reply card. No change was made in the stamp designs, which bear the portraits of Gen. Washington and Mrs. Washington, but the word "only" was omitted from the inscription, so that it reads "This side of card is for address"; the border surrounding the inscription on the message card was changed to a single line with inwardly curving corners, and the border about the inscription on the reply card was changed to a single line with inwardly curving corners, the entire inscription appearing in gothic capital letters, with an open instead of solid background to the words "Reply card", and a dot before and after those words, which are separated from "This side of card is for address" by an ornamental device.

Cards of the altered design were first placed on sale September 18, 1915.

REDEMPTION OF STAMPED PAPER.

The number of redemption claims received and disposed of in 1916 was 32,142, amounting to $8,678,722.24. Of these claims 10,074 related to postal-savings issues amounting to $7,247,903.50.

STOCKS OF STAMPED PAPER.

The Government's stocks of postage-stamped paper available for issue consisted on June 30, 1916, of 1,418,334,554 adhesive stamps, 295,948,401 stamped envelopes, 39,335,750 newspaper wrappers, 451,569,050 postal cards, 4,730,524 postal-savings cards, and 36,633,800 postal-savings stamps.

LOSSES OF STAMPS BY BURGLARY.

The number of claims filed with the Solicitor for the Post Office Department in 1916, for the value of postage stamps lost by burglary of post offices, was 690, amounting to $144,440.54, as compared with 720 claims, amounting to $197,011.88, filed in 1915. It will be seen that while the number of claims is approximately the same, the amount is $52,571.38 less. The improvement is attributable to the revision of postmasters' requisitions in the Division of Stamps for the purpose of minimizing risks, and also to the greater care exercised by postmasters in the protection of their stocks, under special instructions of this office and of the chief inspector's office.

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REGISTRY, INSURANCE, AND COLLECT-ON-DELIVERY SERVICES.

SUMMARY FOR THE FISCAL YEAR.

The number of pieces of mail registered, insured, and sent collect on delivery during the fiscal years ended June 30, 1915, and June 30, 1916, is shown in the following statement:

Description.	1915	1916
REGISTERED.		
Paid registrations:		
Domestic letters and parcels	27,687,772	29,091,506
Foreign letters and parcels	4,325,002	5,179,325
Total paid registrations	32,012,774	34,270,831
Free registrations—official	5,296,669	4,965,738
Total paid and free	37,309,443	39,236,569
Amount collected for registry fees	$3,201,277.40	$3,427,083.10
INSURED.		
Fourth-class (domestic parcel post):		
Pieces mailed at 25-cent fee[1]		123,073
Fees		$30,768.25
Pieces mailed at 10-cent fee	802,572	1,039,741
Fees	$80,257.20	$103,974.10
Pieces mailed at 5-cent fee	17,209,241	10,962,595
Fees	$860,462.05	$548,129.75
Pieces mailed at 3-cent fee[1]		12,810,673
Fees		$384,320.19
Total pieces insured	18,011,813	24,936,082
Total fees	$940,719.25	$1,067,192.29
COLLECT ON DELIVERY.		
Fourth-class (domestic parcel post) pieces	4,721,334	6,300,546
Fees	$472,133.40	$630,054.60
SUMMARY.		
Total paid registered, insured, and C. O. D. pieces	54,745,921	65,507,459
Total fees	$4,614,130.05	$5,124,329.99
Total paid registered, insured, and C. O. D. pieces, and free registered pieces	60,042,590	70,473,197

[1] Fee became effective Sept. 1, 1915.

PAID REGISTRATIONS.

There was an increase of 2,258,057, or 7.05 per cent, in the total number of paid registrations during the fiscal year 1916 over the preceding year. There were 1,403,734 more pieces in the domestic registered mail and 854,323 in the international or foreign registered mail. The increase more than offsets the decrease of the previous year, which was due largely to conditions resulting from the European war.

FREE REGISTRATIONS.

There were 4,965,738 pieces of official mail registered free, or 12.65 per cent of the total paid and free registrations. The decrease of 330,931 pieces, or 6.25 per cent, under the previous year in the number of free registrations is the result of efforts made to reduce the considerable expense borne by the Post Office Department in performing work without compensation. The treatment and protection given official free registered mail are the same as that g ven registered mail on which a fee is paid. Efforts will be made to effect still further reductions.

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Free registrations at the Washington, D. C., post office, where the largest number originated, totaled 645,144, or 13 per cent, of the total free registrations. Moreover, 191,080 pieces which would otherwise have been registered as single pieces at Washington were sent free by the Treasury and Navy Departments in direct pouches.

INSURED MAIL.

The steady increase in patronage of the insurance service which has obtained during previous fiscal years was even more pronounced in the fiscal year 1916. During 1915 there were 18,011,813 parcels insured, an increase of 4,648,354 over 1914. The increase in 1916 over 1915 was 6,924,269, approximately 50 per cent greater than the increase of 1915 over 1914.

A large part of the increase in the insured mail must be attributed to the popularity of the changes in the insurance fees, which became effective September 1, 1915. The new fee of 3 cents for indemnity not exceeding $5 in event of loss has been extensively patronized, and although in effect only 10 months there were 12,810,673 pieces insured at that rate, or nearly 2,000,000 more than were insured during the year at the 5-cent fee. The thought was advanced that the 25-cent fee would not be extensively utilized, but this has been entirely refuted by the returns from postmasters showing that over 123,000 parcels were insured at that rate during the 10 months that it has been in effect. Notwithstanding the creation of the smaller insurance fee, it is pleasing to note that the total revenue from fees on parcels insured during the fiscal year 1916 was $1,067,192.29, compared with $940,719.25 in the fiscal year 1915, an increase of $125,473.04. The increase in indemnity paid on account of lost insured mail for 1916 over 1915 was only $29,421.01.

Claims for indemnity are adjusted most expeditiously, the time required having been further reduced, until now, on the average, they are approved for payment within 10 days after receipt at the Post Office Department.

COLLECT-ON-DELIVERY SERVICE.

There was an increase of 1,579,212 parcels sent collect on delivery during the fiscal year 1916 over the preceding year. Many favorable reports have reached this office commending the promptness with which remittances are received by senders of C. O. D. parcels. This feature, as well as the speedy adjustment of claims for indemnity (C. O. D. parcels being automatically insured against loss not in excess of $50), has commended the service to the mail-order establishments and other patrons of the Postal Service who desire payment for their goods before they are delivered to the purchaser.

The attitude of the department regarding the practice of certain firms sending parcels collect on delivery to persons who did not order them, and the prosecution in court, following investigation by post-office inspectors, of certain firms who persisted in this fraudulent method has had the effect of almost entirely eliminating the practice, only an occasional complaint now being received. In these cases the attention of the senders is invited to the fact that they are transgressing the law and they immediately discontinue the objectionable practice.

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MAILINGS AT THE OFFICES TRANSACTING THE LARGEST REGISTRY, INSURANCE, AND COLLECT ON DELIVERY BUSINESS.

Following is a statement of the mailings during the fiscal year 1916 at the 50 offices transacting the largest registry business, the 50 offices transacting the largest insurance business, and the 50 offices transacting the largest C. O. D. business:

Description.	Number of pieces.	Per cent of the 50 offices to all offices.
Registered (paid)	16,673,400	48.65
Insured	10,442,633	41.92
C. O. D.	4,388,471	69.65

The percentage of paid registrations at the 50 offices transacting the largest registry business during the fiscal year 1915 was 45.13. The slight increase in the percentage for the fiscal year 1916 over the preceding fiscal year is due principally to the large increase in paid registrations at the New York City post office, where there were 4,954,464 pieces registered during the year as compared with 4,094,006 during the previous year. There was an increase of 2,651,491 parcels insured at the 50 offices transacting the largest insurance business during the fiscal year 1916, over the previous year, but the percentage for 1915 to the business of all offices was 43.26. New York insured 2,469,919 parcels in 1916—more than any other city. Chicago, where so many mail order houses are located, again accepted more parcels to be sent C. O. D. than any other office, there being 1,143,115 pieces mailed there during the fiscal year 1916, or 18.14 per cent of the total number mailed at all offices. The charges to be collected and remitted to the senders by money orders on the C. O. D. parcels mailed at Chicago amounted to $7,205,752.47, on which the postal service received $70,795.80 as money order fees.

SPECIAL FEATURES OF THE REGISTRY, INSURANCE, AND C. O. D. SERVICES.

The following statement shows briefly the operations of the special features of the registry, insurance, and C. O. D. services during the fiscal year ended June 30, 1916:

CITY-CARRIER REGISTRATIONS.

Offices having City Delivery Service	1,857
Number of city carriers	34,226
Letters registered	309,865
Average city-carrier registrations for each office	167
Average registrations for each carrier	9

RURAL-CARRIER REGISTRATIONS.

Offices having Rural Delivery Service	18,839
Routes in operation	43,243
Number of rural carriers	43,083
Letters and parcels registered	708,752

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INSURED AND C. O. D. PARCELS ACCEPTED BY RURAL CARRIERS.

Insured	581,928
C. O. D	15,222
Total	597,150

MARINE-CARRIER REGISTRATIONS (DETROIT, MICH.)

Number of pieces registered (paid)	25

REGISTRATIONS ON BOARD UNITED STATES NAVAL VESSELS.

Paid	54,474
Free	6,447
Total	60,921

PARCELS INSURED AND SENT C. O. D. ON BOARD UNITED STATES NAVAL VESSELS.

Insured at 3-cent fee [1]	3,223
Insured at 5-cent fee	3,822
Insured at 10-cent fee	535
Insured at 25-cent fee [1]	82
C. O. D.	12
Total	7,674

REGISTRATIONS BY SEA-POST CLERKS.

Number of pieces registered (paid)	24

INDEMNITY FOR LOST REGISTERED, INSURED, AND C. O. D. MAIL.

The following statement shows the number of domestic and international registry indemnity claims, and the number of domestic insurance and C. O. D. claims that were approved during the fiscal year ended June 30, 1916, the amount of indemnity paid, and the average amount of indemnity paid per piece of mail:

Class of mail.	Number of claims approved.	Amount of indemnity paid.	Average indemnity paid per piece of mail.
Domestic registered mail	2,400	$32,782.70	$13.66
International registered mail	969	7,405.17	7.64
Insured domestic fourth-class mail	25,135	163,107.32	6.49
C. O. D. domestic fourth-class mail	4,528	27,752.54	6.13
Total	33,032	231,047.73	7.00

INDEMNITY FOR DAMAGE TO REGISTERED AND INSURED MAIL.

The act of August 24, 1912, establishing a domestic parcel post, contemplated the payment of indemnity on account of partial injury or damage to insured mail, but under the practice adopted at the inauguration of the service on January 1, 1913, indemnity was paid only for loss or irreparable damage coming under a ruling of the Comptroller of the Treasury as constructively constituting a loss. As the failure to pay for partial damage was inequitable and frequently worked a hardship upon patrons of the service Congress was re-

[1] Fee became effective Sept. 1, 1915.

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quested to make specific provision whereby the appropriation for indemnity could be utilized in the adjustment of claims of this character. The act making appropriations for the Postal Service for the fiscal year 1917 enables the department to pay indemnity in the event of injury to registered, insured, and C. O. D. mail, and in furtherance thereof an order was issued by the Postmaster General making the new provision effective as to all parcels mailed on and after August 8, 1916. The new procedure will remove the most serious objection to the method that has been followed for many years in the adjustment of claims for indemnity, and will give an added incentive for patrons of the Postal Service to avail themselves of the protection afforded by the registry, insurance, and C. O. D. services.

SENDERS' RECEIPTS FOR ORDINARY PARCELS.

The special feature of furnishing receipts to senders, when desired by them, for fourth-class parcels which are not insured nor sent collect on delivery, upon payment of a charge of 1 cent for each receipt, was put into operation on September 1, 1915. The new facility has been well patronized and has proven as much of a success as was anticipated. This receipt serves only to evidence the mailing of fourth-class parcels—no indemnity is paid in the event of their loss or damage. During the 10 months this service has been in effect there have been approximately 1,000,000 receipts furnished.

IMPROVEMENTS IN SERVICE.

Numerous improvements were effected in the registry, insurance, and C. O. D. services, and at the same time the standard of the service rendered has been maintained and increased. Following are the principal improvements made: Amendment of the regulations so as to provide for the payment of indemnity to the sender or such interested person as is named by him; the elimination of specially printed slide labels for registered mail pouches by substituting ordinary labels; the discontinuance of the practice of placing the date of postmark on bills covering the dispatch of registered mail; the extension of rotary locks and keys to Navy mail clerks in Atlantic waters and the requirement that all registered mail from and to such vessels shall be sent under such locks; the extension of the delivery of registered mail by the "inward number only" system, or a modification thereof, to second-class offices; the revision of the application for indemnity for lost insured mail whereby only the information absolutely necessary for the adjustment of the claim is required; and the conducting of experiments at Pittsburgh, Baltimore, and Washington as to the practicability of accepting for insurance parcels which are dispatched without any special tag attached indicating that the parcel has been insured. Many of the improvements in the service that were instituted during the preceding fiscal year, such as the combination and simplification of forms and the improvement in keeping records of registered, insured, and C. O. D. mail at post offices, have been carried to a successful conclusion during the present year. This is evidenced by the very satisfactory increase in the number of regis-

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trations and parcels accepted for insurance and sent C. O. D., and the decrease in the relative number of indemnity claims filed.

PERSONNEL OF THE BUREAU.

The 420 officers and employees provided by law for this bureau (including the stamped-envelope agency at Dayton, Ohio), at salaries aggregating $541,650, are assigned as follows: To the executive office of the Third Assistant Postmaster General, 9; division of finance, 17; division of postal savings, 173; division of money orders, 54; division of classification, 46; division of stamps, 80; division of registered mails, 29; stamped-envelope agency at Dayton, Ohio, 12.

Very respectfully,

A. M. DOCKERY,
Third Assistant Postmaster General.

Hon. ALBERT S. BURLESON,
Postmaster General.

REPORT OF THE FOURTH ASSISTANT POSTMASTER GENERAL.

POST OFFICE DEPARTMENT,
OFFICE FOURTH ASSISTANT POSTMASTER GENERAL,
Washington, D. C., October 15, 1916.

SIR: I have the honor to submit the report of the Fourth Assistant Postmaster General for the fiscal year ended June 30, 1916.

RURAL MAIL SERVICE.

On June 30, 1916, 5,719,062 families, representing a total population of 26,307,686, were being given the benefits of rural mail service at a cost of $51,715,616 as compared with 5,529,030 families, the equivalent of 25,433,537 persons, on the same date of the previous year, at an expenditure of $52,547,256. In 1916, therefore, 874,149 additional persons were served at a reduction in expense of $831,640. The comparative costs for the two years were, for 1916, $1.966 and, for 1915, $2.066 per capita, a decrease of 10 cents.

There were 42,927 routes in operation at the end of the year, covering 1,091,852 miles and averaging 25.435 miles to the route, while the total length of the 43,866 routes in operation on June 30, 1915, was 1,076,235 miles, the average length per route being 24.535 miles.

Former schedules were practically the same as had prevailed for 10 years, but greatly improved road conditions in various sections of the country permitted the serving of routes considerably longer than the standard of 24 miles without changes in schedules.

During the year 1,444 routes were established and 2,383 routes were discontinued, through readjustments, resulting in a net decrease of 939 in the total number in operation.

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Revision of the service to eliminate duplication, unnecessary retracing, and unjustifiable special facilities for some patrons was conducted in 329 counties in 29 States during the year, resulting in a reduction in cost of $1,359,162. This saving, together with that of $654,280, made in the readjustments during the fiscal year 1915, aggregates $2,013,442, and, with such funds, all applications for new service or extensions have been granted where the requirements have been met.

It is estimated that by a continuation of the policy of revising the rural service throughout the entire country all the territory now covered could be served at a reduction in cost of $3,500,000.

The following comparative tabulation is of interest and shows, by States, the routes in operation, mileage, annual rate of cost, approximate number of patrons served, the average cost per patron and per piece of mail handled as of June 30, 1915, and June 30, 1916:

[The costs shown do not include overhead or indirect expense of departmental and inspection service.]

State.	Number of routes.		Mileage of routes.		Annual rate of cost (including substitutes).	
	June 30, 1915.	June 30, 1916.	June 30, 1915.	June 30, 1916.	June 30, 1915.	June 30, 1916.
Alabama	1,081	1,088	26,110	27,102	$1,285,168	1,294,832
Arizona	25	27	602	678	27,972	30,238
Arkansas	543	594	12,584	14,191	617,623	665,224
California	439	331	10,275	11,160	518,421	412,864
Colorado	205	216	5,422	5,950	235,959	248,400
Connecticut	282	272	6,230	6,362	325,691	316,704
Delaware	109	80	2,579	2,500	131,290	107,368
District of Columbia	8	7	185	287	9,011	10,962
Florida	263	198	6,297	7,069	296,932	235,008
Georgia	1,713	1,613	40,980	42,035	2,049,097	1,976,064
Idaho	162	169	4,035	4,290	184,192	190,720
Illinois	2,856	2,845	69,146	69,129	3,499,010	3,490,748
Indiana	2,124	2,022	51,755	51,863	2,595,795	2,498,784
Iowa	2,365	2,169	59,731	58,665	2,908,628	2,707,680
Kansas	1,860	1,853	50,872	51,173	2,264,617	2,269,984
Kentucky	803	824	18,781	19,361	950,221	971,256
Louisiana	268	287	6,319	7,002	292,714	314,112
Maine	476	478	10,914	10,989	560,328	564,064
Maryland	437	413	9,921	9,952	510,911	487,672
Massachusetts	313	275	7,005	6,834	367,110	332,848
Michigan	1,937	1,776	49,401	48,404	2,377,328	2,184,520
Minnesota	1,647	1,583	43,826	43,841	2,020,386	1,948,816
Mississippi	868	907	20,839	22,271	1,021,268	1,052,608
Missouri	2,166	2,176	51,372	51,784	2,595,459	2,608,400
Montana	91	110	2,419	2,978	95,148	111,592
Nebraska	1,088	1,090	29,263	29,377	1,323,870	1,326,120
Nevada	4	4	85	85	4,368	4,375
New Hampshire	245	246	5,518	5,581	285,095	289,232
New Jersey	314	307	7,166	7,160	370,552	366,416
New Mexico	27	31	764	897	28,390	32,378
New York	1,946	1,948	44,871	45,120	2,338,234	2,342,096
North Carolina	1,368	1,388	31,555	32,320	1,594,636	1,618,800
North Dakota	622	649	18,172	18,965	684,842	709,176
Ohio	2,550	2,546	60,876	60,922	3,095,738	3,099,112
Oklahoma	1,180	1,061	31,812	33,094	1,434,784	1,345,504
Oregon	255	256	6,239	6,293	302,266	304,976
Pennsylvania	2,036	1,925	51,037	50,712	2,478,946	2,367,968
Rhode Island	49	48	986	1,005	52,295	52,040
South Carolina	858	869	20,289	20,709	1,022,262	1,032,568
South Dakota	616	623	18,144	18,326	730,186	737,368
Tennessee	1,622	1,610	38,212	38,454	1,926,328	1,919,160
Texas	2,086	2,018	50,574	52,081	2,464,297	2,425,808
Utah	54	55	1,214	1,237	60,923	62,009
Vermont	343	343	7,608	7,610	396,190	395,376
Virginia	1,092	1,107	24,310	24,785	1,255,788	1,279,472
Washington	346	357	8,462	8,811	398,432	408,552
West Virginia	417	410	9,296	9,487	477,996	472,080
Wisconsin	1,688	1,702	41,634	42,357	2,060,271	2,071,352
Wyoming	19	21	548	594	20,288	22,210
Total	43,866	42,927	1,076,235	1,091,852	52,547,256	51,715,616

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State.	Approximate number of patrons served—		Annual cost per patron—		Annual cost per piece of mail handled—	
	June 30, 1915.	June 30, 1916.	June 30, 1915.	June 30, 1916.	June 30, 1915.	June 30, 1916.
Alabama	865,987	922,447	$1.484	$1.404	$0.0210	$0.0191
Arizona	15,037	18,796	1.860	1.609	.0115	.0100
Arkansas	407,247	466,330	1.517	1.427	.0184	.0208
California	424,497	451,495	1.221	.914	.0096	.0080
Colorado	125,562	135,222	1.879	1.837	.0113	.0116
Connecticut	191,618	195,528	1.700	1.620	.0089	.0094
Delaware	56,414	56,460	2.327	1.902	.0177	.0159
District of Columbia	12,319	13,294	.731	.824	.0122	.0092
Florida	177,988	202,000	1.668	1.163	.0209	.0223
Georgia	1,283,800	1,336,866	1.596	1.478	.0194	.0182
Idaho	108,900	115,980	1.691	1.644	.0120	.0114
Illinois	1,305,521	1,317,353	2.680	2.650	.0110	.0147
Indiana	1,137,042	1,150,469	2.283	2.172	.0152	.0155
Iowa	1,030,681	1,031,325	2.823	2.625	.0132	.0136
Kansas	778,173	786,471	2.910	2.886	.0138	.0138
Kentucky	608,336	639,092	1.562	1.520	.0161	.0172
Louisiana	216,421	238,331	1.352	1.318	.0211	.0195
Maine	239,959	213,082	2.335	2.320	.0117	.0123
Maryland	280,154	281,009	1.824	1.735	.0134	.0136
Massachusetts	217,704	218,495	1.686	1.523	.0103	.0099
Michigan	1,071,616	1,086,253	2.218	2.011	.0130	.0130
Minnesota	710,875	724,353	2.842	2.690	.0138	.0142
Mississippi	619,942	693,234	1.647	1.518	.0231	.0214
Missouri	1,089,285	1,119,005	2.383	2.331	.0156	.0161
Montana	45,673	54,740	2.083	2.039	.0136	.0132
Nebraska	488,419	502,720	2.710	2.638	.0132	.0136
Nevada	1,904	1,904	2.291	2.300	.0117	.0114
New Hampshire	114,503	115,520	2.490	2.504	.0110	.0113
New Jersey	225,653	230,189	1.642	1.592	.0108	.0109
New Mexico	10,727	12,586	2.647	2.573	.0168	.0110
New York	1,062,526	1,079,671	2.201	2.169	.0111	.0124
North Carolina	1,005,831	1,046,210	1.585	1.547	.0185	.0203
North Dakota	196,604	207,685	3.483	3.415	.0196	.0182
Ohio	1,500,653	1,520,456	2.063	2.038	.0120	.0132
Oklahoma	596,721	633,218	2.404	2.125	.0181	.0162
Oregon	170,251	178,935	1.775	1.704	.0104	.0112
Pennsylvania	1,259,199	1,280,810	1.969	1.849	.0128	.0135
Rhode Island	33,907	34,344	1.542	1.515	.0099	.0098
South Carolina	661,462	682,387	1.545	1.513	.0227	.0227
South Dakota	226,246	231,168	3.227	3.190	.0146	.0144
Tennessee	1,141,412	1,185,852	1.688	1.618	.0241	.0245
Texas	1,424,441	1,490,368	1.730	1.628	.0172	.0162
Utah	62,983	67,326	.967	.921	.0086	.0086
Vermont	142,784	142,830	2.775	2.768	.0150	.0177
Virginia	701,564	727,922	1.790	1.758	.0177	.0186
Washington	252,131	265,167	1.580	1.541	.0121	.0114
West Virginia	256,657	264,873	1.862	1.782	.0152	.0154
Wisconsin	868,425	899,203	2.372	2.304	.0145	.0154
Wyoming	7,783	8,712	2.607	2.549	.0138	.0135
Total and average	25,433,537	26,307,688	2.066	1.966	.0144	.0150

There were 518 triweekly routes established during the year, while service on 196 triweekly routes was made daily, and on 6 daily routes was reduced to triweekly.

During the fiscal year 3,031 petitions for establishment of rural delivery routes were filed with the department, of which 2,449 were accepted and referred for investigation. On June 30, 1916, there were 483 establishment cases under investigation in the field and 50 petitions pending completion in the department, as compared with 421 cases and 88 petitions, respectively, one year previously.

The total number of rural carriers in the service on June 30, 1916, was 42,766, a decrease of 944 as compared with the previous year. The average annual pay per carrier was $1,162.50, including motor-vehicle service; for horse-drawn routes the average was $1,155.48.

During the year 1,844 carriers resigned from the service, 208 died, and 550 were removed.

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The following table shows the growth of the Rural Delivery Service by years since its inception and the expenditure involved:

Fiscal year.	Routes.[1]	Increase in routes.	Appropriation.	Expenditure.	Increase in expenditure.
1897	82	.....	$40,000	$14,840	.....
1898	153	71	50,250	50,241	$35,401
1899	412	259	150,032	150,012	99,771
1900	1,259	847	450,000	420,433	270,421
1901	3,761	2,502	1,750,796	1,750,321	1,329,888
1902	8,298	4,537	4,089,075	4,089,041	2,338,720
1903	15,119	6,821	8,580,364	8,051,599	3,962,558
1904	24,566	9,447	12,926,905	12,645,275	4,593,676
1905	32,110	7,544	21,116,600	20,864,885	[2]8,219,610
1906	35,766	3,656	25,828,300	25,011,625	4,146,740
1907	37,728	1,962	28,200,000	26,661,555	1,649,930
1908	39,277	1,549	34,900,000	34,371,939	[3]7,710,384
1909	40,628	1,351	35,673,000	35,661,034	1,289,095
1910	41,079	451	37,260,000	36,914,769	1,253,735
1911	41,656	577	38,860,000	37,125,630	210,861
1912	42,199	543	42,790,000	41,859,422	[4]4,733,792
1913	42,805	606	47,000,000	45,642,810	[5]3,783,388
1914	43,652	847	47,500,000	47,380,959	1,738,149
1915	43,866	225	53,000,000	49,820,000	[6]2,439,041
1916	42,927	[7]939	53,000,000	52,000,000	2,180,000

[1] Apparent discrepancies between the figures in this column and in the corresponding column headed "Carriers" in previous annual reports are due to having been taken for periods other than fiscal years.
[2] Maximum salary of carriers increased from $600 to $720 per annum.
[3] Maximum salary of carriers increased from $720 to $900 per annum.
[4] Maximum salary of carriers increased from $900 to $1,000 per annum.
[5] Maximum salary of carriers increased from $1,000 to $1,100 per annum.
[6] Maximum salary of carriers increased from $1,100 to $1,200 per annum.
[7] Decrease.

The collection and delivery of mail in rural territory is not always in accord with the best methods of distribution where the maximum of good service should be provided at the minimum of reasonable expense. Frequently rural mail facilities are apparently maintained in their present manner and form merely to increase the influence and importance of the communities from which certain routes start, or to enlarge the compensation of the postmaster where his remuneration is based upon the postal receipts. Consequently, rural patrons suffer through delay in transmission of mail or through the lack of direct communication with important mailing centers, and in many cases are compelled to pay higher postage rates on parcel-post mail, discouraging the use of this desirable feature of postal activity.

Here and there what is familiarly known as "county rural service" also interferes with the best system of distribution, as it encourages to an extent the feeling that the expenditures for the conduct of rural-delivery service constitute a form of Federal largess in which counties are entitled to a proportion without consideration of return or income from such expenditures. Rural mail service should be established and maintained solely for the benefit of the postal patron and, if necessary, frequently changed when the interests of the patron may be improved thereby. An established route should not be considered as the equity of a State, county, or municipality in the sums annually expended by the National Government.

Almost the entire expense incident to the operation of the rural mail service is in the compensation of carriers. The basis of the present system of compensation, however, is properly subject to adverse criticism.

Compensation should always be based on a fair day's pay for a fair day's work, and in return the people are entitled to a fair day's work

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for a fair day's pay. Neither obtains generally in the conduct of the rural mail service.

Thousands of employees work hard 8, 10, and 12 hours daily and receive exactly the same compensation as is paid to thousands of other employees who do not work more than 5 hours a day throughout the year.

Thousands of carriers are compelled to maintain expensive equipment, to drive over difficult mountainous highways, and receive exactly the same compensation as is paid thousands of other carriers who cover the same mileage on improved highways equal in every respect to a paved boulevard.

Thousands of carriers convey 15,000 to 50,000 pieces of mail monthly to and from rural patrons and receive exactly the same pay as carriers who transport from 3,000 to 5,000 pieces of mail monthly.

Carriers in the mounted city delivery service are paid an annual salary with allowance for vehicle equipment when furnished by them. Carriers in the Rural Delivery Service are entitled to equal consideration when they perform the same hours of daily service, transport the same mail, and are subject to the same expense. In fact, on account of their unusual duties, which include the sale of stamps and stamped paper, registration of mail, transaction of money-order business, etc., duties not ordinarily required of city delivery carriers, they should undoubtedly receive adequate return for their service and certainly in reasonable proportion to that paid other employees engaged in similar work. To that end, when a rural carrier works 8 hours each day, transports approximately 50,000 pieces of mail a month, covers 50 miles or more daily on the highway, and provides and maintains a motor vehicle of a capacity required by the department, he should receive not less than $2,000 per annum.

MOTOR VEHICLE ROUTES.

On June 30, 1916, 500 motor vehicle rural routes were in operation, of a total length of 26,878 miles, averaging 53.756 miles per route, the rate of annual cost being $877,824, or an average of $1,755.65 per route.

These motor routes superseded horse-drawn vehicle service formerly costing $1,093,106 a year. This represents an annual economy of $215,282.

Motor vehicle routes are operated at a saving over the cost of the horse-drawn vehicle service which they supplanted, but the main advantage derived is the advanced delivery of mail to patrons. It is reasonably certain that mail reaches patrons several hours earlier by motor deliveries.

The greater distance covered by motor routes makes it possible for a much larger number of persons in given localities to communicate with one another on the same day, eliminating the necessity for taking the mail to post offices for redispatch and in some instances transshipment over one or more railroads.

Better facilities are also afforded for the transportation of products of the farm. This is particularly true where a direct line of intercourse, not otherwise possible, is established by motor vehicle service between more or less important postal points, thus giving the patrons of routes connected with the main artery means for the prompt

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dispatch of parcel-post mail and stimulating the economic system of "farm to table" exchange.

The opposition in some communities to the adoption of motor delivery was largely due to misapprehension or to that natural antipathy to any movement involving an innovation.

The reasons for supplanting the horse with the motor in every business requiring the use of vehicles apply with equal force to the Postal Service. Improvements in roads will inevitably bring about like changes in rural districts.

That the many advantages in the motor service are now appreciated by its patrons is apparent from the fact that the department continues to receive petitions for the establishment of motor vehicle routes.

Where motor routes are established, principally with the object of accelerating mail service to post offices, the benefits are even greater than where delivery to individuals is the main feature, although their cost in such cases is relatively greater because much of the service superseded is of the less expensive kind. Motor routes are of especial benefit in sections where railroad facilities are lacking.

An example of the improvement following the substitution of a motor-vehicle service is shown in the operation of the route between Washington, D. C., and Leonardtown, Md. This route not only gives direct daily service to 9 post offices, but it also permits of the depositing of mail at its terminus for 26 small post offices beyond that point. The mail now reaches the intermediate offices from 2 to 4 hours earlier than heretofore, and as the carrier now arrives at Leonardtown in time to make connections for all of the more distant offices the mail for those points is advanced fully 24 hours. Formerly it was necessary to hold transit mail at Leonardtown overnight. The route affords excellent facilities for shipment of farm products and sea food. A comparison of the number of parcels conveyed thereon during May and August of this year shows an increase during the latter month of 100 per cent

EXTENSION OF SERVICE.

In regard to the provision in the act making appropriations for the service for the fiscal year 1917, "that rural mail delivery shall be extended so as to serve as nearly as practicable the entire rural population of the United States," it should be stated that rural delivery service covered, at the end of the fiscal year 1916, 1,037,259 miles of roads, while star-route service was operated over 139,634 miles. These figures represent the aggregate length of the routes, less an allowance of 5 per cent for duplication.

It is estimated that there are 2,199,646 miles of public roads in the United States, so that there remain 1,022,753 miles of roads on which no mail service is in operation.

At the end of the fiscal year 1916 an estimated population of 26,307,686 was served by rural routes, 520,000 by star routes, and approximately 10,000,000 by fourth-class post offices. The total rural population in the United States is placed at 43,991,722. It will be seen, therefore, that while 83 per cent of the rural population is receiving convenient mail service, 47 per cent of the rural road mileage is uncovered.

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It would not be wise to alter the present practice to such an extent as to provide these uncovered roads with mail service at the existing rates of pay, as it would necessitate the establishment of 45,000 new routes, at a cost of $51,800,000 per annum, thus raising the total annual cost of the rural delivery service to $102,886,000. Expansion should be gradual as rural communities grow and meet the reasonable requirements adopted.

COORDINATION OF STAR ROUTE AND RURAL MAIL SERVICE.

DELIVERY IN INTERMEDIATE ZONE BETWEEN RURAL AND CITY SERVICE.

There are many advantages in having rural and star routes under one administrative head, as star routes and portions thereof are being constantly absorbed by rural routes; and cooperation between the two services is thus readily obtained. Owing to existing restrictions, however, it is impossible to make use of the greatest advantage—interchangeability.

The department should be able to utilize, whenever advisable, either of the two systems—the contract or the salary—in order to render the best service to the patrons and at the same time observe the principles of efficiency so essential to the success of any business.

In many instances it is not possible to obtain reasonable bids for star service, because of the uncertain conditions incident to the handling of parcel-post matter and because the life of contracts is but four years. The certainty of positions at definite salaries would probably attract competent carriers.

On the other hand, the contract system could be applied to advantage in many situations, in order to enable the department to provide proper service for a large and increasing class of patrons, to whom adequate delivery is difficult under present restricting laws—patrons who reside in suburbs of cities, but not within the limits of city dee livery. Many of them are employed in the cities and feel keenly the lack of the mail facilities to which they have been accustomed. Thy communities are so thickly settled, however, as to preclude service b. rural routes, whereon carriers could cover daily but short mileage Moreover, at the limited salaries prescribed by law, it would be difficult to obtain carriers for such service.

RURAL PARCEL POST.

Parcel-post matter handled by rural carriers is steadily increasing in volume on most routes, but the proportion delivered is greatly in excess of that collected.

Advantage of the parcel-post system has not been taken, however, to the extent which might be expected, but patrons are gradually awakening to the fact that markets are now open to them which heretofore could not be reached.

Considerable stimulus has been given in this regard by the splendid results accomplished through the "farm-to-table" movement inaugurated by the First Assistant.

The provision in the postal appropriation act for the current fiscal year for conducting experiments to determine the most practicable

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for mailing up to 50 pounds in weight when for delivery within the first and second zones, and up to 20 pounds when for delivery within the other zones. A provision of the act referred to prohibits the acceptance for mailing under the penalty privilege of any article or package exceeding 4 pounds in weight unless it comes within certain specific exceptions. Accordingly, official matter weighing more than 4 pounds and not included in the exceptions can not be accepted free under a penalty envelope or label, but may, if within the prescribed limits of weight, be sent under postage paid at the appropriate rate.

MAILINGS WITHOUT STAMPS AFFIXED.

During the fiscal year postage to the amount of $8,791,443.91 was collected in money on mailings of second, third, and fourth class matter without stamps affixed, under permit, an increase of $1,264,704.19, or 16.8 per cent, over the amount collected during the previous year.

The act of May 18, 1916, reduced the minimum number of identical pieces of third and fourth class matter which may be accepted for mailing without stamps affixed, the postage being paid in money, from 2,000 to 300 and 250, respectively. It also extended the privilege to such second-class matter, mailed in quantities of not less than 300 identical pieces, as was previously required to have the postage paid with stamps affixed, and provided for the acceptance without stamps affixed of money and securities mailed by the Treasury Department at the first or fourth class rate. These modifications and extensions will enable many persons and concerns to avail themselves of the advantages of the permit system who could not formerly do so because the quantity of their mailings was less than the prescribed minimum number of 2,000 pieces. The Postal Service, too, will be benefited, as it will no longer be necessary to cancel the postage stamps on such matter.

INCLOSURE OF HIGHER CLASS MATTER WITH A LOWER CLASS FOR MAILING AT LOWER RATE.

There arose during the fiscal year 904 cases involving violations of the statute making it an offense, punishable by a fine of not more than $100, to conceal or inclose matter of a higher class in that of a lower class for the purpose of evading payment of the higher postage rate properly chargeable. In the previous year there were 757 cases. It developed upon inquiry and investigation that 872 of the apparent violations were not willful, but due to inadvertence or misunderstanding. In 29 cases the mailers were unknown and could not be located. In 3 cases, resulting in prosecutions, fines were imposed by the court.

WINDOW ENVELOPES.

There has come into use in recent years what is commonly known as the window envelope—that is, an envelope having a transparent area in its face through which the address written on the inclosure may be seen. Since these envelopes make unnecessary the work of addressing, required when ordinary envelopes are used, and at the same time reduce the likelihood of erroneous addresses, their use is of considerable advantage to business concerns and others. When window envelopes first came into use it was found that the addresses frequently were written indistinctly, the windows in some instances

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were of a low degree of transparency, and many large business concerns adopted the use of dark stationery of various colors. In some instances the use of colored stationery and colored windows made the addresses on the inclosures difficult to read. This led to the issuance of regulations permitting the use of such envelopes only under certain reasonable conditions, principally that they must have uncolored windows of a high degree of transparency, that white stationery or that of light tints only shall be used, that the name and address of the sender must be placed in the upper left corner, and that the name and address of the addressee must be written plainly and boldly, preferably in typewriting, with ink of a dense black or other strongly contrasting color. In the enforcement of these requirements, which are designed to remove the objectionable features pointed out, the department has had the hearty cooperation of manufacturers and users of window envelopes.

PRODUCTION, DISTRIBUTION, AND REDEMPTION OF STAMPED PAPER.

SUMMARY FOR THE FISCAL YEAR.

In the fiscal year 1916 the sales of postage stamps and other stamped paper amounted to $277,728,025.20, an increase of $21,521,481.49, or 8.4 per cent, above the sales of the fiscal year 1915. These are the greatest sales and the largest increase ever recorded. If the present rate of sales is continued, the revenue from stamped paper should reach $300,000,000 in the fiscal year 1917.

The per capita consumption of postage stamps last year was $2.68. In the fiscal year 1857, the first full year in which prepayment of postage by means of stamps was compulsory under the act of March 3, 1855, the per capita consumption was 19 cents. The increase of population in this period has been 257 per cent; of postage stamp consumption 4,968 per cent. The great increase in the use of the mails thus indicated constitutes a striking exposition of the advance of education and of commerce in the United States.

A summary of transactions in stamped paper for the fiscal year 1916 follows:

Postage stamps and other stamped paper on hand in post offices July 1, 1915	$104,035,823.48
Stamped paper charged to postmasters	287,352,176.84
Stamped paper transferred from post offices	1,095,865.66
Adjustment of stamped paper purchased by Navy mail clerks from postmasters	1,358.05
Total	392,485,224.03
Sales by postmasters, July 1, 1915, to June 30, 1916 [1]	277,728,025.20
Stamped paper redeemed by the department from postmasters	1,314,041.13
International reply coupons redeemed by the department	2,628.75
Dead-letter bills	12,801.65
Stamped paper transferred to post offices	1,095,012.64
Stamped paper on hand in post offices June 30, 1916	112,332,714.66
Total	392,485,224.03

[1] The sales reported by this office differ somewhat from those reported by the Auditor for the Post Office Department, the difference being due to credits allowed by the auditor to postmasters on account of losses by fire, burglary, and other casualties; to the excess revenue gained in sales of stamped envelopes and newspaper wrappers singly and in odd quantities, an item which is stated by postmasters directly to the auditor and not to this office; to the adjustment of certain differences between the stamp and postal accounts; and to the adjustment in postal accounts of certain debits and credits which can not be entered in stamp accounts. These differences are all reconciled between the two offices quarterly and annually

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The number of postage stamps, postal cards, stamped envelopes, newspaper wrappers, international reply coupons, and postal-savings cards and stamps issued by the department to postmasters was 14,650,243,326, an increase of 590,191,237, or 4.2 per cent.

EFFECT OF THE WAR UPON STAMP SALES.

The reduction in stamp sales which followed the outbreak of war in Europe, and the subsequent recovery in the sales, was noted in my report for the fiscal year 1915. The improvement continued through 1916, as shown by the following table:

Quarter ended—	Increase.	Percentage.
Sept. 30, 1915	$1,783,893.53	3.01
Dec. 31, 1915	6,309,444.50	9.04
Mar. 31, 1916	6,379,946.21	9.87
June 30, 1916	7,048,197.25	11.25

REQUISITIONS FILLED.

In 1916 the department filled 931,091 requisitions for stamps and other stamped paper, an increase of 5,480, or 0.59 per cent. The daily average was 3,052 requisitions, compared with 3,035 in 1915.

COILED STAMPS.

The public demand for stamps in coils of 500 and 1,000 showed a marked increase. The number of coils issued was 1,924,908, which was 333,446, or 21 per cent, more than in 1915. This new form of stamp issue has met a cordial welcome on the part of users of stamps in quantities, who have found the coils much more convenient to handle than stamps in sheets.

STAMP BOOKS.

In 1916 the department issued 28,005,930 stamp books, an increase of 226,130, or 0.81 per cent.

STAMPED ENVELOPES.

The stamped envelopes and newspaper wrappers issued to postmasters in 1916 numbered 1,853,791,461. Of these, 1,273,312,111, or 68.68 per cent, bore printed return cards, and 580,479,350, or 31.32 per cent, were plain. The gross selling value was $36,875,445.44.

Postmasters accounted for a total of $131,625.90 arising from gains in fractions of a cent when stamped envelopes and newspaper wrappers were sold in odd quantities.

NEW STAMPED ENVELOPES.

The department has adopted a 2-cent embossed stamp of new design for the stamped envelope. It is in form of a circle about

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1.1 inches in diameter. In the center is embossed the head of Washington in profile, looking to the left. The sides and upper portion of the border carry the words "United States Postage" in white capital letters, and within the border beneath the head is the word "cents," with the numeral "2" on each side inclosed in a small white circle.

The new envelopes were first placed on sale December 20, 1915.

POSTAL CARDS.

The number of postal cards issued to postmasters in the fiscal year 1916 was 1,047,894,800. The value of these cards was $10,784,307. The engraving of new steel printing plates offered a favorable opportunity to make certain needed alterations in the No. 6 1-cent reply card. No change was made in the stamp designs, which bear the portraits of Gen. Washington and Mrs. Washington, but the word "only" was omitted from the inscription, so that it reads "This side of card is for address"; the border surrounding the inscription on the message card was changed to a single line with inwardly curving corners, and the border about the inscription on the reply card was changed to a single line with inwardly curving corners, the entire inscription appearing in gothic capital letters, with an open instead of solid background to the words "Reply card", and a dot before and after those words, which are separated from "This side of card is for address" by an ornamental device.

Cards of the altered design were first placed on sale September 18, 1915.

REDEMPTION OF STAMPED PAPER.

The number of redemption claims received and disposed of in 1916 was 32,142, amounting to $8,678,722.24. Of these claims 10,074 related to postal-savings issues amounting to $7,247,903.50.

STOCKS OF STAMPED PAPER.

The Government's stocks of postage-stamped paper available for issue consisted on June 30, 1916, of 1,418,334,554 adhesive stamps, 295,948,401 stamped envelopes, 39,335,750 newspaper wrappers, 451,569,050 postal cards, 4,730,524 postal-savings cards, and 36,633,800 postal-savings stamps.

LOSSES OF STAMPS BY BURGLARY.

The number of claims filed with the Solicitor for the Post Office Department in 1916, for the value of postage stamps lost by burglary of post offices, was 690, amounting to $144,440.54, as compared with 720 claims, amounting to $197,011.88, filed in 1915. It will be seen that while the number of claims is approximately the same, the amount is $52,571.38 less. The improvement is attributable to the revision of postmasters' requisitions in the Division of Stamps for the purpose of minimizing risks, and also to the greater care exercised by postmasters in the protection of their stocks, under special instructions of this office and of the chief inspector's office.

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REGISTRY, INSURANCE, AND COLLECT-ON-DELIVERY SERVICES.

SUMMARY FOR THE FISCAL YEAR.

The number of pieces of mail registered, insured, and sent collect on delivery during the fiscal years ended June 30, 1915, and June 30, 1916, is shown in the following statement:

Description.	1915	1916
REGISTERED.		
Paid registrations:		
Domestic letters and parcels	27,687,772	29,091,506
Foreign letters and parcels	4,325,002	5,179,325
Total paid registrations	32,012,774	34,270,831
Free registrations—official	5,296,669	4,965,738
Total paid and free	37,309,443	39,236,569
Amount collected for registry fees	$3,201,277.40	$3,427,083.10
INSURED.		
Fourth-class (domestic parcel post):		
Pieces mailed at 25-cent fee [1]		123,073
Fees		$30,768.25
Pieces mailed at 10-cent fee	802,572	1,039,741
Fees	$80,257.20	$103,974.10
Pieces mailed at 5-cent fee	17,209,241	10,962,595
Fees	$860,462.05	$548,129.75
Pieces mailed at 3-cent fee [1]		12,810,673
Fees		$384,320.19
Total pieces insured	18,011,813	24,936,082
Total fees	$940,719.25	$1,067,192.29
COLLECT ON DELIVERY.		
Fourth-class (domestic parcel post) pieces	4,721,334	6,300,546
Fees	$472,133.40	$630,054.60
SUMMARY.		
Total paid registered, insured, and C. O. D. pieces	54,745,921	65,507,459
Total fees	$4,614,130.05	$5,124,329.99
Total paid registered, insured, and C. O. D. pieces, and free registered pieces	60,042,590	70,473,197

[1] Fee became effective Sept. 1, 1915.

PAID REGISTRATIONS.

There was an increase of 2,258,057, or 7.05 per cent, in the total number of paid registrations during the fiscal year 1916 over the preceding year. There were 1,403,734 more pieces in the domestic registered mail and 854,323 in the international or foreign registered mail. The increase more than offsets the decrease of the previous year, which was due largely to conditions resulting from the European war.

FREE REGISTRATIONS.

There were 4,965,738 pieces of official mail registered free, or 12.65 per cent of the total paid and free registrations. The decrease of 330,931 pieces, or 6.25 per cent, under the previous year in the number of free registrations is the result of efforts made to reduce the considerable expense borne by the Post Office Department in performing work without compensation. The treatment and protection given official free registered mail are the same as that g ven registered mail on which a fee is paid. Efforts will be made to effect still further reductions.

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Free registrations at the Washington, D. C., post office, where the largest number originated, totaled 645,144, or 13 per cent, of the total free registrations. Moreover, 191,080 pieces which would otherwise have been registered as single pieces at Washington were sent free by the Treasury and Navy Departments in direct pouches.

INSURED MAIL.

The steady increase in patronage of the insurance service which has obtained during previous fiscal years was even more pronounced in the fiscal year 1916. During 1915 there were 18,011,813 parcels insured, an increase of 4,648,354 over 1914. The increase in 1916 over 1915 was 6,924,269, approximately 50 per cent greater than the increase of 1915 over 1914.

A large part of the increase in the insured mail must be attributed to the popularity of the changes in the insurance fees, which became effective September 1, 1915. The new fee of 3 cents for indemnity not exceeding $5 in event of loss has been extensively patronized, and although in effect only 10 months there were 12,810,673 pieces insured at that rate, or nearly 2,000,000 more than were insured during the year at the 5-cent fee. The thought was advanced that the 25-cent fee would not be extensively utilized, but this has been entirely refuted by the returns from postmasters showing that over 123,000 parcels were insured at that rate during the 10 months that it has been in effect. Notwithstanding the creation of the smaller insurance fee, it is pleasing to note that the total revenue from fees on parcels insured during the fiscal year 1916 was $1,067,192.29, compared with $940,719.25 in the fiscal year 1915, an increase of $125,473.04. The increase in indemnity paid on account of lost insured mail for 1916 over 1915 was only $29,421.01.

Claims for indemnity are adjusted most expeditiously, the time required having been further reduced, until now, on the average, they are approved for payment within 10 days after receipt at the Post Office Department.

COLLECT-ON-DELIVERY SERVICE.

There was an increase of 1,579,212 parcels sent collect on delivery during the fiscal year 1916 over the preceding year. Many favorable reports have reached this office commending the promptness with which remittances are received by senders of C. O. D. parcels. This feature, as well as the speedy adjustment of claims for indemnity (C. O. D. parcels being automatically insured against loss not in excess of $50), has commended the service to the mail-order establishments and other patrons of the Postal Service who desire payment for their goods before they are delivered to the purchaser.

The attitude of the department regarding the practice of certain firms sending parcels collect on delivery to persons who did not order them, and the prosecution in court, following investigation by post-office inspectors, of certain firms who persisted in this fraudulent method has had the effect of almost entirely eliminating the practice, only an occasional complaint now being received. In these cases the attention of the senders is invited to the fact that they are transgressing the law and they immediately discontinue the objectionable practice.

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MAILINGS AT THE OFFICES TRANSACTING THE LARGEST REGISTRY, INSURANCE, AND COLLECT ON DELIVERY BUSINESS.

Following is a statement of the mailings during the fiscal year 1916 at the 50 offices transacting the largest registry business, the 50 offices transacting the largest insurance business, and the 50 offices transacting the largest C. O. D. business:

Description.	Number of pieces.	Per cent of the 50 offices to all offices.
Registered (paid)	16,673,400	48.65
Insured	10,442,633	41.92
C. O. D.	4,388,471	69.65

The percentage of paid registrations at the 50 offices transacting the largest registry business during the fiscal year 1915 was 45.13. The slight increase in the percentage for the fiscal year 1916 over the preceding fiscal year is due principally to the large increase in paid registrations at the New York City post office, where there were 4,954,464 pieces registered during the year as compared with 4,094,006 during the previous year. There was an increase of 2,651,491 parcels insured at the 50 offices transacting the largest insurance business during the fiscal year 1916, over the previous year, but the percentage for 1915 to the business of all offices was 43.26. New York insured 2,469,919 parcels in 1916—more than any other city. Chicago, where so many mail order houses are located, again accepted more parcels to be sent C. O. D. than any other office, there being 1,143,115 pieces mailed there during the fiscal year 1916, or 18.14 per cent of the total number mailed at all offices. The charges to be collected and remitted to the senders by money orders on the C. O. D. parcels mailed at Chicago amounted to $7,205,752.47, on which the postal service received $70,795.80 as money order fees.

SPECIAL FEATURES OF THE REGISTRY, INSURANCE, AND C. O. D. SERVICES.

The following statement shows briefly the operations of the special features of the registry, insurance, and C. O. D. services during the fiscal year ended June 30, 1916:

CITY-CARRIER REGISTRATIONS.

Offices having City Delivery Service	1,857
Number of city carriers	34,226
Letters registered	309,865
Average city-carrier registrations for each office	167
Average registrations for each carrier	9

RURAL-CARRIER REGISTRATIONS.

Offices having Rural Delivery Service	18,839
Routes in operation	43,243
Number of rural carriers	43,083
Letters and parcels registered	708,752

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INSURED AND C. O. D. PARCELS ACCEPTED BY RURAL CARRIERS.

Insured	581,928
C. O. D.	15,222
Total	597,150

MARINE-CARRIER REGISTRATIONS (DETROIT, MICH.)

Number of pieces registered (paid)	25

REGISTRATIONS ON BOARD UNITED STATES NAVAL VESSELS.

Paid	54,474
Free	6,447
Total	60,921

PARCELS INSURED AND SENT C. O. D. ON BOARD UNITED STATES NAVAL VESSELS.

Insured at 3-cent fee [1]	3,223
Insured at 5-cent fee	3,822
Insured at 10-cent fee	535
Insured at 25-cent fee [1]	82
C. O. D.	12
Total	7,674

REGISTRATIONS BY SEA-POST CLERKS.

Number of pieces registered (paid)	24

INDEMNITY FOR LOST REGISTERED, INSURED, AND C. O. D. MAIL.

The following statement shows the number of domestic and international registry indemnity claims, and the number of domestic insurance and C. O. D. claims that were approved during the fiscal year ended June 30, 1916, the amount of indemnity paid, and the average amount of indemnity paid per piece of mail:

Class of mail.	Number of claims approved.	Amount of indemnity paid.	Average indemnity paid per piece of mail.
Domestic registered mail	2,400	$32,782.70	$13.66
International registered mail	969	7,405.17	7.64
Insured domestic fourth-class mail	25,135	163,107.32	6.49
C. O. D. domestic fourth-class mail	4,528	27,752.54	6.13
Total	33,032	231,047.73	7.00

INDEMNITY FOR DAMAGE TO REGISTERED AND INSURED MAIL.

The act of August 24, 1912, establishing a domestic parcel post, contemplated the payment of indemnity on account of partial injury or damage to insured mail, but under the practice adopted at the inauguration of the service on January 1, 1913, indemnity was paid only for loss or irreparable damage coming under a ruling of the Comptroller of the Treasury as constructively constituting a loss. As the failure to pay for partial damage was inequitable and frequently worked a hardship upon patrons of the service Congress was re-

[1] Fee became effective Sept. 1, 1915.

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quested to make specific provision whereby the appropriation for indemnity could be utilized in the adjustment of claims of this character. The act making appropriations for the Postal Service for the fiscal year 1917 enables the department to pay indemnity in the event of injury to registered, insured, and C. O. D. mail, and in furtherance thereof an order was issued by the Postmaster General making the new provision effective as to all parcels mailed on and after August 8, 1916. The new procedure will remove the most serious objection to the method that has been followed for many years in the adjustment of claims for indemnity, and will give an added incentive for patrons of the Postal Service to avail themselves of the protection afforded by the registry, insurance, and C. O. D. services.

SENDERS' RECEIPTS FOR ORDINARY PARCELS.

The special feature of furnishing receipts to senders, when desired by them, for fourth-class parcels which are not insured nor sent collect on delivery, upon payment of a charge of 1 cent for each receipt, was put into operation on September 1, 1915. The new facility has been well patronized and has proven as much of a success as was anticipated. This receipt serves only to evidence the mailing of fourth-class parcels—no indemnity is paid in the event of their loss or damage. During the 10 months this service has been in effect there have been approximately 1,000,000 receipts furnished.

IMPROVEMENTS IN SERVICE.

Numerous improvements were effected in the registry, insurance, and C. O. D. services, and at the same time the standard of the service rendered has been maintained and increased. Following are the principal improvements made: Amendment of the regulations so as to provide for the payment of indemnity to the sender or such interested person as is named by him; the elimination of specially printed slide labels for registered mail pouches by substituting ordinary labels; the discontinuance of the practice of placing the date of postmark on bills covering the dispatch of registered mail; the extension of rotary locks and keys to Navy mail clerks in Atlantic waters and the requirement that all registered mail from and to such vessels shall be sent under such locks; the extension of the delivery of registered mail by the "inward number only" system, or a modification thereof, to second-class offices; the revision of the application for indemnity for lost insured mail whereby only the information absolutely necessary for the adjustment of the claim is required; and the conducting of experiments at Pittsburgh, Baltimore, and Washington as to the practicability of accepting for insurance parcels which are dispatched without any special tag attached indicating that the parcel has been insured. Many of the improvements in the service that were instituted during the preceding fiscal year, such as the combination and simplification of forms and the improvement in keeping records of registered, insured, and C. O. D. mail at post offices, have been carried to a successful conclusion during the present year. This is evidenced by the very satisfactory increase in the number of regis-

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trations and parcels accepted for insurance and sent C. O. D., and the decrease in the relative number of indemnity claims filed.

PERSONNEL OF THE BUREAU.

The 420 officers and employees provided by law for this bureau (including the stamped-envelope agency at Dayton, Ohio), at salaries aggregating $541,650, are assigned as follows: To the executive office of the Third Assistant Postmaster General, 9; division of finance, 17; division of postal savings, 173; division of money orders, 54; division of classification, 46; division of stamps, 80; division of registered mails, 29; stamped-envelope agency at Dayton, Ohio, 12.

Very respectfully,

A. M. DOCKERY,
Third Assistant Postmaster General.

Hon. ALBERT S. BURLESON,
Postmaster General.

REPORT OF THE FOURTH ASSISTANT POSTMASTER GENERAL.

POST OFFICE DEPARTMENT,
OFFICE FOURTH ASSISTANT POSTMASTER GENERAL,
Washington, D. C., October 15, 1916.

SIR: I have the honor to submit the report of the Fourth Assistant Postmaster General for the fiscal year ended June 30, 1916.

RURAL MAIL SERVICE.

On June 30, 1916, 5,719,062 families, representing a total population of 26,307,686, were being given the benefits of rural mail service at a cost of $51,715,616 as compared with 5,529,030 families, the equivalent of 25,433,537 persons, on the same date of the previous year, at an expenditure of $52,547,256. In 1916, therefore, 874,149 additional persons were served at a reduction in expense of $831,640. The comparative costs for the two years were, for 1916, $1.966 and, for 1915, $2.066 per capita, a decrease of 10 cents.

There were 42,927 routes in operation at the end of the year, covering 1,091,852 miles and averaging 25.435 miles to the route, while the total length of the 43,866 routes in operation on June 30, 1915, was 1, 076,235 miles, the average length per route being 24.535 miles.

Former schedules were practically the same as had prevailed for 10 years, but greatly improved road conditions in various sections of the country permitted the serving of routes considerably longer than the standard of 24 miles without changes in schedules.

During the year 1,444 routes were established and 2,383 routes were discontinued, through readjustments, resulting in a net decrease of 939 in the total number in operation.

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Revision of the service to eliminate duplication, unnecessary retracing, and unjustifiable special facilities for some patrons was conducted in 329 counties in 29 States during the year, resulting in a reduction in cost of $1,359,162. This saving, together with that of $654,280, made in the readjustments during the fiscal year 1915, aggregates $2,013,442, and, with such funds, all applications for new service or extensions have been granted where the requirements have been met.

It is estimated that by a continuation of the policy of revising the rural service throughout the entire country all the territory now covered could be served at a reduction in cost of $3,500,000.

The following comparative tabulation is of interest and shows, by States, the routes in operation, mileage, annual rate of cost, approximate number of patrons served, the average cost per patron and per piece of mail handled as of June 30, 1915, and June 30, 1916:

[The costs shown do not include overhead or indirect expense of departmental and inspection service.]

State.	Number of routes.		Mileage of routes.		Annual rate of cost (including substitutes).	
	June 30, 1915.	June 30, 1916.	June 30, 1915.	June 30, 1916.	June 30, 1915.	June 30, 1916.
Alabama	1,081	1,088	26,110	27,102	$1,285,168	1,294,832
Arizona	25	27	602	678	27,972	30,238
Arkansas	543	594	12,584	14,191	617,623	665,224
California	439	331	10,275	11,160	518,421	412,864
Colorado	205	216	5,422	5,950	235,959	248,400
Connecticut	282	272	6,230	6,362	325,691	316,704
Delaware	109	80	2,579	2,500	131,290	107,368
District of Columbia	8	7	185	287	9,011	10,962
Florida	263	198	6,297	7,069	296,932	235,008
Georgia	1,713	1,613	40,980	42,035	2,049,097	1,976,064
Idaho	162	169	4,035	4,290	184,192	190,720
Illinois	2,856	2,845	69,146	69,129	3,499,010	3,490,748
Indiana	2,124	2,022	51,755	51,863	2,595,795	2,498,784
Iowa	2,365	2,169	59,731	58,665	2,908,628	2,707,680
Kansas	1,860	1,853	50,872	51,173	2,264,617	2,269,984
Kentucky	803	824	18,781	19,361	950,221	971,256
Louisiana	268	287	6,319	7,002	292,714	314,112
Maine	476	478	10,914	10,989	560,328	564,064
Maryland	437	413	9,921	9,952	510,911	487,672
Massachusetts	313	275	7,005	6,834	367,110	332,848
Michigan	1,937	1,776	49,401	48,404	2,377,328	2,184,520
Minnesota	1,647	1,583	43,826	43,841	2,020,386	1,948,816
Mississippi	868	907	20,839	22,271	1,021,268	1,052,608
Missouri	2,166	2,176	51,372	51,784	2,595,459	2,608,400
Montana	91	110	2,419	2,978	95,148	111,592
Nebraska	1,088	1,090	29,263	29,377	1,323,870	1,326,120
Nevada	4	4	85	85	4,368	4,375
New Hampshire	245	246	5,518	5,581	285,095	289,232
New Jersey	314	307	7,166	7,160	370,552	366,416
New Mexico	27	31	764	897	28,390	32,378
New York	1,946	1,948	44,871	45,120	2,338,234	2,342,096
North Carolina	1,368	1,388	31,555	32,320	1,594,636	1,618,800
North Dakota	622	649	18,172	18,965	684,842	709,176
Ohio	2,550	2,546	60,876	60,922	3,095,738	3,099,112
Oklahoma	1,180	1,061	31,812	33,094	1,434,784	1,345,504
Oregon	255	256	6,239	6,293	302,266	304,976
Pennsylvania	2,036	1,925	51,037	50,712	2,478,946	2,367,968
Rhode Island	49	48	986	1,005	52,295	52,040
South Carolina	858	869	20,289	20,709	1,022,262	1,032,568
South Dakota	616	623	18,144	18,326	730,186	737,368
Tennessee	1,622	1,610	38,212	38,454	1,926,328	1,919,160
Texas	2,086	2,018	50,574	52,081	2,464,297	2,425,808
Utah	54	55	1,214	1,237	60,923	62,009
Vermont	343	343	7,608	7,610	396,190	395,376
Virginia	1,092	1,107	24,310	24,785	1,255,788	1,279,472
Washington	346	357	8,462	8,811	398,432	408,552
West Virginia	417	410	9,296	9,487	477,996	472,080
Wisconsin	1,688	1,702	41,634	42,357	2,060,271	2,071,352
Wyoming	19	21	548	594	20,288	22,210
Total	43,866	42,927	1,076,235	1,091,852	52,547,256	51,715,616

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State.	Approximate number of patrons served—		Annual cost per patron—		Annual cost per piece of mail handled—	
	June 30, 1915.	June 30, 1916.	June 30, 1915.	June 30, 1916.	June 30, 1915.	June 30, 1916.
Alabama	865,987	922,447	$1.484	$1.404	$0.0210	$0.0191
Arizona	15,037	18,796	1.860	1.609	.0115	.0100
Arkansas	407,247	466,330	1.517	1.427	.0184	.0208
California	424,497	451,495	1.221	.914	.0096	.0080
Colorado	125,562	135,222	1.879	1.837	.0113	.0116
Connecticut	191,618	195,528	1.700	1.620	.0089	.0094
Delaware	56,414	56,460	2.327	1.902	.0177	.0159
District of Columbia	12,319	13,294	.731	.824	.0122	.0092
Florida	177,988	202,000	1.668	1.163	.0209	.0223
Georgia	1,283,800	1,336,866	1.596	1.478	.0194	.0182
Idaho	108,900	115,980	1.691	1.644	.0120	.0114
Illinois	1,305,521	1,317,353	2.680	2.650	.0110	.0147
Indiana	1,137,042	1,150,469	2.283	2.172	.0152	.0155
Iowa	1,030,681	1,031,325	2.823	2,625	.0132	.0136
Kansas	778,173	786,471	2.910	2.886	.0138	.0138
Kentucky	608,336	639,092	1.562	1.520	.0161	.0172
Louisiana	216,421	238,331	1.352	1.318	.0211	.0195
Maine	239,959	213,082	2.335	2.320	.0117	.0123
Maryland	280,154	281,009	1.824	1.735	.0134	.0136
Massachusetts	217,704	218,495	1.686	1.523	.0103	.0099
Michigan	1,071,616	1,086,253	2.218	2.011	.0130	.0130
Minnesota	710,875	724,353	2.842	2.690	.0138	.0142
Mississippi	619,942	693,234	1.647	1.518	.0231	.0214
Missouri	1,089,285	1,119,005	2.383	2.331	.0156	.0161
Montana	45,673	54,740	2.083	2.039	.0136	.0132
Nebraska	488,419	502,720	2.710	2.638	.0132	.0136
Nevada	1,904	1,904	2.291	2.300	.0117	.0114
New Hampshire	114,503	115,520	2.490	2.504	.0110	.0113
New Jersey	225,653	230,189	1.642	1.592	.0108	.0109
New Mexico	10,727	12,586	2.647	2.573	.0168	.0110
New York	1,062,526	1,079,671	2.201	2.169	.0111	.0124
North Carolina	1,005,831	1,046,210	1.585	1.547	.0185	.0203
North Dakota	196,604	207,685	3.483	3.415	.0196	.0182
Ohio	1,500,653	1,520,456	2.063	2.038	.0120	.0132
Oklahoma	596,721	633,218	2.404	2.125	.0181	.0162
Oregon	170,251	178,935	1.775	1.704	.0104	.0112
Pennsylvania	1,259,199	1,280,810	1.969	1.849	.0128	.0135
Rhode Island	33,907	34,344	1.542	1.515	.0099	.0098
South Carolina	661,462	682,387	1.545	1.513	.0227	.0227
South Dakota	226,246	231,168	3.227	3.190	.0146	.0144
Tennessee	1,141,412	1,185,852	1.688	1.618	.0211	.0215
Texas	1,424,441	1,490,368	1.730	1.628	.0172	.0162
Utah	62,983	67,328	.967	.921	.0086	.0086
Vermont	142,784	142,830	2.775	2.768	.0150	.0177
Virginia	701,564	727,922	1.790	1.758	.0177	.0186
Washington	252,131	265,167	1.580	1.541	.0121	.0114
West Virginia	256,657	264,873	1.862	1.782	.0152	.0154
Wisconsin	868,425	899,203	2.372	2.304	.0145	.0154
Wyoming	7,783	8,712	2.607	2.549	.0138	.0135
Total and average	25,433,537	26,307,686	2.066	1.966	.0144	.0150

There were 518 triweekly routes established during the year, while service on 196 triweekly routes was made daily, and on 6 daily routes was reduced to triweekly.

During the fiscal year 3,031 petitions for establishment of rural delivery routes were filed with the department, of which 2,449 were accepted and referred for investigation. On June 30, 1916, there were 483 establishment cases under investigation in the field and 50 petitions pending completion in the department, as compared with 421 cases and 88 petitions, respectively, one year previously.

The total number of rural carriers in the service on June 30, 1916, was 42,766, a decrease of 944 as compared with the previous year. The average annual pay per carrier was $1,162.50, including motor-vehicle service; for horse-drawn routes the average was $1,155.48.

During the year 1,844 carriers resigned from the service, 208 died, and 550 were removed.

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The following table shows the growth of the Rural Delivery Service by years since its inception and the expenditure involved:

Fiscal year.	Routes.[1]	Increase in routes.	Appropriation.	Expenditure.	Increase in expenditure.
1897	82	.....	$40,000	$14,840	.....
1898	153	71	50,250	50,241	$35,401
1899	412	259	150,032	150,012	99,771
1900	1,259	847	450,000	420,433	270,421
1901	3,701	2,502	1,750,796	1,750,321	1,329,888
1902	8,298	4,537	4,089,075	4,089,041	2,338,720
1903	15,119	6,821	8,580,364	8,051,599	3,962,558
1904	24,566	9,447	12,926,905	12,645,275	4,593,676
1905	32,110	7,544	21,116,000	20,864,885	[2]8,219,610
1906	35,766	3,656	25,828,300	25,011,625	4,146,740
1907	37,728	1,962	28,200,000	26,661,555	1,649,930
1908	39,277	1,549	34,800,000	31,371,939	[3]7,710,384
1909	40,628	1,351	35,673,000	35,661,031	1,289,095
1910	41,079	451	37,200,000	36,914,769	1,253,735
1911	41,656	577	38,800,000	37,125,630	210,861
1912	42,199	543	42,790,000	41,859,422	[4]4,733,792
1913	42,805	606	47,000,000	45,642,810	[5]3,783,388
1914	43,652	847	47,500,000	47,380,959	1,738,149
1915	43,866	225	53,000,000	49,820,000	[6]2,439,041
1916	42,927	[7]939	53,000,000	52,000,000	2,189,000

[1] Apparent discrepancies between the figures in this column and in the corresponding column headed "Carriers" in previous annual reports are due to having been taken for periods other than fiscal years.
[2] Maximum salary of carriers increased from $600 to $720 per annum.
[3] Maximum salary of carriers increased from $720 to $900 per annum.
[4] Maximum salary of carriers increased from $900 to $1,000 per annum.
[5] Maximum salary of carriers increased from $1,000 to $1,100 per annum.
[6] Maximum salary of carriers increased from $1,100 to $1,200 per annum.
[7] Decrease.

The collection and delivery of mail in rural territory is not always in accord with the best methods of distribution where the maximum of good service should be provided at the minimum of reasonable expense. Frequently rural mail facilities are apparently maintained in their present manner and form merely to increase the influence and importance of the communities from which certain routes start, or to enlarge the compensation of the postmaster where his remuneration is based upon the postal receipts. Consequently, rural patrons suffer through delay in transmission of mail or through the lack of direct communication with important mailing centers, and in many cases are compelled to pay higher postage rates on parcel-post mail, discouraging the use of this desirable feature of postal activity.

Here and there what is familiarly known as "county rural service" also interferes with the best system of distribution, as it encourages to an extent the feeling that the expenditures for the conduct of rural-delivery service constitute a form of Federal largess in which counties are entitled to a proportion without consideration of return or income from such expenditures. Rural mail service should be established and maintained solely for the benefit of the postal patron and, if necessary, frequently changed when the interests of the patron may be improved thereby. An established route should not be considered as the equity of a State, county, or municipality in the sums annually expended by the National Government.

Almost the entire expense incident to the operation of the rural mail service is in the compensation of carriers. The basis of the present system of compensation, however, is properly subject to adverse criticism.

Compensation should always be based on a fair day's pay for a fair day's work, and in return the people are entitled to a fair day's work

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for a fair day's pay. Neither obtains generally in the conduct of the rural mail service.

Thousands of employees work hard 8, 10, and 12 hours daily and receive exactly the same compensation as is paid to thousands of other employees who do not work more than 5 hours a day throughout the year.

Thousands of carriers are compelled to maintain expensive equipment, to drive over difficult mountainous highways, and receive exactly the same compensation as is paid thousands of other carriers who cover the same mileage on improved highways equal in every respect to a paved boulevard.

Thousands of carriers convey 15,000 to 50,000 pieces of mail monthly to and from rural patrons and receive exactly the same pay as carriers who transport from 3,000 to 5,000 pieces of mail monthly.

Carriers in the mounted city delivery service are paid an annual salary with allowance for vehicle equipment when furnished by them. Carriers in the Rural Delivery Service are entitled to equal consideration when they perform the same hours of daily service, transport the same mail, and are subject to the same expense. In fact, on account of their unusual duties, which include the sale of stamps and stamped paper, registration of mail, transaction of money-order business, etc., duties not ordinarily required of city delivery carriers, they should undoubtedly receive adequate return for their service and certainly in reasonable proportion to that paid other employees engaged in similar work. To that end, when a rural carrier works 8 hours each day, transports approximately 50,000 pieces of mail a month, covers 50 miles or more daily on the highway, and provides and maintains a motor vehicle of a capacity required by the department, he should receive not less than $2,000 per annum.

MOTOR VEHICLE ROUTES.

On June 30, 1916, 500 motor vehicle rural routes were in operation, of a total length of 26,878 miles, averaging 53.756 miles per route, the rate of annual cost being $877,824, or an average of $1,755.65 per route.

These motor routes superseded horse-drawn vehicle service formerly costing $1,093,106 a year. This represents an annual economy of $215,282.

Motor vehicle routes are operated at a saving over the cost of the horse-drawn vehicle service which they supplanted, but the main advantage derived is the advanced delivery of mail to patrons. It is reasonably certain that mail reaches patrons several hours earlier by motor deliveries.

The greater distance covered by motor routes makes it possible for a much larger number of persons in given localities to communicate with one another on the same day, eliminating the necessity for taking the mail to post offices for redispatch and in some instances transshipment over one or more railroads.

Better facilities are also afforded for the transportation of products of the farm. This is particularly true where a direct line of intercourse, not otherwise possible, is established by motor vehicle service between more or less important postal points, thus giving the patrons of routes connected with the main artery means for the prompt

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dispatch of parcel-post mail and stimulating the economic system of "farm to table" exchange.

The opposition in some communities to the adoption of motor delivery was largely due to misapprehension or to that natural antipathy to any movement involving an innovation.

The reasons for supplanting the horse with the motor in every business requiring the use of vehicles apply with equal force to the Postal Service. Improvements in roads will inevitably bring about like changes in rural districts.

That the many advantages in the motor service are now appreciated by its patrons is apparent from the fact that the department continues to receive petitions for the establishment of motor vehicle routes.

Where motor routes are established, principally with the object of accelerating mail service to post offices, the benefits are even greater than where delivery to individuals is the main feature, although their cost in such cases is relatively greater because much of the service superseded is of the less expensive kind. Motor routes are of especial benefit in sections where railroad facilities are lacking.

An example of the improvement following the substitution of a motor-vehicle service is shown in the operation of the route between Washington, D. C., and Leonardtown, Md. This route not only gives direct daily service to 9 post offices, but it also permits of the depositing of mail at its terminus for 26 small post offices beyond that point. The mail now reaches the intermediate offices from 2 to 4 hours earlier than heretofore, and as the carrier now arrives at Leonardtown in time to make connections for all of the more distant offices the mail for those points is advanced fully 24 hours. Formerly it was necessary to hold transit mail at Leonardtown overnight. The route affords excellent facilities for shipment of farm products and sea food. A comparison of the number of parcels conveyed thereon during May and August of this year shows an increase during the latter month of 100 per cent

EXTENSION OF SERVICE.

In regard to the provision in the act making appropriations for the service for the fiscal year 1917, "that rural mail delivery shall be extended so as to serve as nearly as practicable the entire rural population of the United States," it should be stated that rural delivery service covered, at the end of the fiscal year 1916, 1,037,259 miles of roads, while star-route service was operated over 139,634 miles. These figures represent the aggregate length of the routes, less an allowance of 5 per cent for duplication.

It is estimated that there are 2,199,646 miles of public roads in the United States, so that there remain 1,022,753 miles of roads on which no mail service is in operation.

At the end of the fiscal year 1916 an estimated population of 26,307,686 was served by rural routes, 520,000 by star routes, and approximately 10,000,000 by fourth-class post offices. The total rural population in the United States is placed at 43,991,722. It will be seen, therefore, that while 83 per cent of the rural population is receiving convenient mail service, 47 per cent of the rural road mileage is uncovered.

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It would not be wise to alter the present practice to such an extent as to provide these uncovered roads with mail service at the existing rates of pay, as it would necessitate the establishment of 45,000 new routes, at a cost of $51,800,000 per annum, thus raising the total annual cost of the rural delivery service to $102,886,000. Expansion should be gradual as rural communities grow and meet the reasonable requirements adopted.

COORDINATION OF STAR ROUTE AND RURAL MAIL SERVICE.

DELIVERY IN INTERMEDIATE ZONE BETWEEN RURAL AND CITY SERVICE.

There are many advantages in having rural and star routes under one administrative head, as star routes and portions thereof are being constantly absorbed by rural routes; and cooperation between the two services is thus readily obtained. Owing to existing restrictions, however, it is impossible to make use of the greatest advantage—interchangeability.

The department should be able to utilize, whenever advisable, either of the two systems—the contract or the salary—in order to render the best service to the patrons and at the same time observe the principles of efficiency so essential to the success of any business.

In many instances it is not possible to obtain reasonable bids for star service, because of the uncertain conditions incident to the handling of parcel-post matter and because the life of contracts is but four years. The certainty of positions at definite salaries would probably attract competent carriers.

On the other hand, the contract system could be applied to advantage in many situations, in order to enable the department to provide proper service for a large and increasing class of patrons, to whom adequate delivery is difficult under present restricting laws—patrons who reside in suburbs of cities, but not within the limits of city dee livery. Many of them are employed in the cities and feel keenly the lack of the mail facilities to which they have been accustomed. Thy communities are so thickly settled, however, as to preclude service b. rural routes, whereon carriers could cover daily but short mileage Moreover, at the limited salaries prescribed by law, it would be difficult to obtain carriers for such service.

RURAL PARCEL POST.

Parcel-post matter handled by rural carriers is steadily increasing in volume on most routes, but the proportion delivered is greatly in excess of that collected.

Advantage of the parcel-post system has not been taken, however, to the extent which might be expected, but patrons are gradually awakening to the fact that markets are now open to them which heretofore could not be reached.

Considerable stimulus has been given in this regard by the splendid results accomplished through the "farm-to-table" movement inaugurated by the First Assistant.

The provision in the postal appropriation act for the current fiscal year for conducting experiments to determine the most practicable

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means of extending the operations of the parcel post so as to permit the marketing of farm products, and further direct transactions between producers and consumers should also be productive of good results.

STAR-ROUTE SERVICE.

This branch of the service has been extended during the past year as new postoffices have been established or as the needs of the postal patron have required.

Contracts for star service for the four-year term beginning July 1, 1916, in the second contract section were awarded at a substantial reduction in the average cost per mile.

As explained in my report for 1915, the renewal of contracts for service on certain routes in the Western States under a new form of advertisement has resulted in the more satisfactory performance of service and in a reduction in the cost of operation of these routes of approximately $130,000 per annum.

In that report I also submitted tentative drafts of legislation embodying certain recommendations affecting the star-route service, with a view to eliminating certain restrictions in the then existing law, which hampered the department in the administration of the service. These suggestions have been enacted into law, and the department is now able to obtain much better results.

The most important item of the new legislation is that removing the restriction formerly imposed by law against any reference being made in the advertisements for star routes as to the mode of transportation.

With the development of the automobile, which has assumed such an important place in postal transportation, it would have frequently been desirable to stipulate in advertisements for service that this kind of conveyance be used, but under the previous law such stipulation could not be made.

VILLAGE DELIVERY SERVICE.

The advancement of this service from the experimental stage, under the terms of the post-office appropriation act for the current fiscal year, has increased the feeling of security and satisfaction of patrons in its operation.

Attention has been given in the last few months at all village delivery offices to several matters which could be dealt with more satisfactorily than when this service was an experimental feature. The hours of service of carriers have been regulated and equalized as nearly as practicable; the delivery zone has been extended in many towns; an additional delivery provided where warranted; closer supervision maintained; and adequate equipment supplied in many cases where badly needed.

The salary of carriers has heretofore been $600 per annum, with few exceptions. Effective October 1, salaries have been increased to $690 in the cases of carriers who have served satisfactorily for not less than 12 months at the former rate and who work not less than 8 hours a day—a very gratifying increase.

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At the close of the fiscal year 1915, village delivery was in operation at 133 offices, and 180 carriers were employed. There are now 222 village delivery offices, with 310 carriers.

Experience has shown that the inauguration of village delivery is not warranted in the smaller municipalities. As a rule, therefore, the service is not installed in towns where the receipts of the post offices have not reached $5,000 per annum.

The extension of the service has been gradual but steady. All applications have been given due consideration and establishment ordered in meritorious cases to an extent commensurate with the appropriation available.

GENERAL.

I wish to invite your attention to a species of pernicious postal parasites, whose existence depends upon their ability to arouse discord and dissension between the administrative officials and the employees.

As self-constituted agents or attorneys they collect salaries and fees from postal employees for services that they never render, and for imaginary influence with Representatives in the Congress.

They frequently publish misleading and inaccurate criticisms of some function of the postal establishment, and circulate prepared articles in various localities, that are carefully collected to present to committees of the Congress to influence legislation.

They encourage and foster numerous associations or organizations, formed ostensibly for the advancement of the postal service and to cooperate with this department for the welfare of the postal patron, which associations, however, are organized purely to raid the public treasury through one form or another of unusual privilege.

They endeavor to utilize the political power of the several organizations or associations they presume to represent to punish their opponents, in and out of public office.

They foregather in the city of Washington during the sessions of Congress and endeavor to destroy the spirit of good will and cooperation that should exist between the executive and legislative branches of the government.

They report to the several associations that maintain them in luxury in this city, from whence they circulate reports concerning their numerous activities, and the many benefits they demand and receive, whereas in fact they do not perform one substantial service, except to limit the earning capacity of that type of postal employee who is entitled to far greater consideration for expert service rendered, while at the same time promoting the interest of that employee who is negligent, inefficient, and whose duty could be performed by a school boy.

They constitute a menace to the classified service in that they thwart the purpose thereof in an effort to concentrate the political power of their deluded followers, and demand of candidates and nominees for public office specific promises with regard to their future action, threatening independent representatives of the people with punishment whenever they indicate their independence.

They attempt to interfere in the administration of discipline and in the promotion and demotion of employees solely because of their

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affiliation with the different organizations in the service, and without regard to the merits involved.

The public service must be freed of these insidious influences, for the reason that they are demoralizing the spirit of honesty and loyalty that constitutes sincerity in the service of the people.

POSTAL EQUIPMENT.

MAIL BAGS.

The demands of the Postal Service for mail bags increased greatly during the past year, and to meet these demands the mail equipment shops repaired and manufactured greater quantities of equipment than in any previous year in their history. The introduction of the improved types of mail bags, adopted some two years ago, continued throughout the fiscal year ended June 30, 1916. Experience has proved the wisdom of replacing the older types with the new and lighter weight equipment.

During the fiscal year a total of 70,879 of the new type ordinary pouch, and 7,001 of the new type catcher pouch were supplied the service, which permitted withdrawal from the mails of like quantities of heavier and less convenient bags, producing a net reduction in the weight of pouch equipment of 249,547 pounds, representing an annual weight economy in transportation of approximately 30,000,000 pounds. The new equipment also represented a direct economy in original cost approximating $71,018.28, being less than 38 per cent of the expense which would have been involved for like quantities of the older types of pouches.

A new sack known as the 2A, which was introduced the past year to the number of 106,654, has proved serviceable. It largely replaces the sack known as the No. 2D, and represents an annual economy in the weight of equipment used in transporting the mails of over 13,000,000 pounds.

The total annual economy effected by improved types of equipment introduced since 1913 will amount to over $1,500,000.

The work of equipping small sacks (purchased in past years, but permitted to lie idle for lack of proper attachments) with cord and fastener, is proceeding as rapidly as possible. There is a ready demand in the service for these sacks and their reclamation from storage and decay is proving of inestimable benefit to the service.

A total of 1,331,559 sacks and pouches and 4,600 satchels were repaired during the year, and in addition thereto the repair shop produced 133,638 new pouches and sacks. Condemned equipment for the 12 months consisted of 59,230 sacks and 50,222 pouches. The storehouse issued a total of 2,548,482 pieces of good equipment, of which 403,427 pieces were for use of the executive departments at Washington, D. C.

Thirty-six hundred bags, 300 locks, and 25 keys were furnished for use of the government of the Philippine Archipelago, and approximately 100 special pouches to the several executive departments here.

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MAIL LOCKS, ETC.

The lock shop produced the following locks and bag attachments during the year:

LA locks	282,151
Street letter-box locks (Arrow)	3,152
Internal revenue locks	785
Pouch fasteners	46,121
Cord fasteners	635,534
Cord clamps	2,296,800
Grommet rings	1,352,400
Grommet tubes	1,309,800

In addition, the following articles were repaired:

Rotary locks	19,755
Street letter-box locks (Arrow)	2,808
Street letter-box locks (Serial)	1,593
Inside locks	457
Cord fasteners	105,680
Numbering machines	236
Railway Mail Service badges	793
Package-box locks	105
Letter-box locks	31
Foreign locks	37
8-ounce scales	400
4-pound scales	400
Government-owned automobiles	3

The mail equipment shops have been conducted in a progressive and alert manner, especially in the direction of experiments aimed to promote the welfare of the service.

This line of endeavor covers a wide range, and among the recent successful results may be mentioned the steel grommet, an improved flexible stamp socket, automatic machinery for producing bag attachments, steel cases for street letter-box locks, a device with cord for use by letter carriers in lieu of tie straps, a locking cord fastener for mail sacks, improved designs for letter and storage boxes, and conservation of equipment.

POSTAL SUPPLIES.

The plan of furnishing general stock supplies to post offices of the third and fourth classes, through postmasters at centrally located first and second class offices, has been successfully extended to 17 States during the year with resultant efficiency of distribution and economy in transportation costs. The system will be gradually placed in operation in the remaining States. Practically every distributing office has undertaken the work without additional labor costs.

Conditions brought about by the world's war have made it difficult to obtain prompt deliveries of many items of supplies, and serious embarrassment to the service in numbers of instances has only been avoided by the keeping of careful checks upon the stock situations at the larger offices in order to make emergency shipments therefrom to needed points. These shipments, of course, have occasioned freight transportation costs which otherwise would not have been the case. Similarly, the development of the plan of making wholesale shipments

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of supplies to post offices direct from the places of business of contractors has been retarded.

The work incident to the withdrawal from the mails of certain penalty matter sent out from the executive departments at Washington, D. C., for shipment by freight, has been assumed by the Division of Equipment and Supplies, thus far without additional expense.

WASTE PAPER.

In harmony with the spirit that prompted the Department of Commerce to encourage and stimulate the conservation of waste paper, this department has urged the cooperation of every employee of the Postal Service in its efforts to alleviate the commercial shortage in that field of industry.

The activities of the Post Office Department are reflected in the increased number of paper-baling machines supplied to postmasters. This course has not only resulted in some relief to the general paper stress, but has incidentally added slightly to the revenues of the Government through the sale of paper which was heretofore destroyed as waste.

LETTER BOXES.

Substantial progress has been made in the department's efforts to equip the service with the new designs of letter boxes, adopted in the interest of economy and utility. The improved types have been supplied to all post offices requiring new boxes for extended service, or to replace worn-out equipment. It is confidently expected that eventually and within comparatively short time nothing other than modern, satisfactory equipment will be found in the entire service, with resultant economy in its acquisition and maintenance.

SCALES

During the past fiscal year the policy has been continued of supplying adequate scales to the service. It is a matter of considerable gratification to the department that every post office in the country, as far as necessary, is equipped with suitable scales for the first time in the history of the service. Incidentally, scales are purchased under most rigid inspection by experts, and those in service carefully supervised and kept in adjustment in order to protect the public and the revenues of the Government.

CANCELING MACHINES.

The contracts for rental of canceling machines will expire June 30, 1917. There are now 1,977 machines rented. The department owns 610 machines, purchased out of unexpended balances of appropriations, with which it will replace a similar number of rented machines. This will leave 1,367 machines to be replaced with Government-owned equipment or continued under rental.

The advantage and economy of Government-owned machines are obvious, and if the department can obtain sufficient appropriation this year to buy the quantity needed, an annual saving of $200,000 will be effected in all subsequent appropriations for canceling machines.

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STANDARD DESIGNS OF MAIL BOXES FOR RURAL AND STAR ROUTES.

In January last specifications were issued for two sizes of mail boxes for rural and star routes, designed and adopted by the department. All boxes erected after July 1, 1916, must conform to the standard designs in every respect and be officially approved. The smaller size is for letters and ordinary mail and the larger for all mail, including parcel post. Patrons may use either size, as preferred, and are not required to discontinue the use of old styles of boxes while they remain serviceable. The models of seven manufacturers have been approved and their boxes are being sold at prices not exceeding $1 each for the smaller size and $2.75 each for the larger size f. o. b. factory, all boxes produced being inspected before shipment by the postmaster at the place of manufacture. This procedure will eventually result in the service being equipped with uniform and substantial boxes at minimum cost to the patrons.

CONVEYORS.

The conveyor feature of postal business in the larger offices has offered a large field for improvement. During this administration a number of conveyors have been installed in post offices, while others already in operation have been improved upon and enlarged.

Careful inspection of the premises where conveyors were to be installed and review of drawings and specifications by the research and design section of this bureau have resulted in material economies in practically every new installation or remodeling of old conveyor systems, which offer encouragement for further improvements and economies in the mechanical line of postal equipment.

Efficiency has not been sacrificed, however, to cheapness, but, on the contrary, close attention to detail has proved that greater efficiency with less expenditure of money is attainable in the many problems of construction reaching this bureau for analysis and decision.

ELECTRICAL SECTION.

During the year the electrical section of the mail equipment shops was given new quarters and placed under the immediate supervision of a skilled electrician, and electrical work in all its branches pertaining to motors, canceling machines, etc., was brought together in the one department.

A careful inventory was taken and every means available used to keep an accurate account of all repairs and the cost thereof. By the adoption of systematic methods the average cost of repairing motors was reduced by one-half.

Each motor is carefully studied as returned to the department for repair, and valuable data have been accumulated which will be used in compiling further instructions to postal employees throughout the country, regarding the care of this class of postal equipment which heretofore has been neglected in many instances, either through indifference or lack of mechanical knowledge on the part of postal employees.

The possibility of a salvage amounting to nearly $20,000 by the reclamation of old canceling machines which have lain idle in the

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service for a number of years, has developed recently through experiments conducted by one of the expert mechanics connected with the equipment shops, who has designed mechanical attachments that bid fair to convert the machines into efficient and up-to-date equipment at a nominal cost. These machines are of an obsolete type and have been regarded as worthless because they never were mechanically perfect and would not cancel mail satisfactorily.

Much attention has been given during the last year to salvage of all kinds of equipment heretofore consigned to the junk pile, and thousands of dollars have been saved to the service in this manner.

EXPERIMENT, RESEARCH, AND DESIGN.

The committee on experiment, research, and design has pursued its activities in wide fields of investigation and test and has considered many devices and suggestions intended to effect improvement and economy in the service. Almost without exception the results have proved the department's contention that its own designs of equipment and its own methods, as gradually improved from time to time to meet changing conditions, are best adapted to the needs of the service. Of the great number of devices submitted, many of them ingenious and possessing merit, few indeed have been found to be of practical or economical value from the department's standpoint, and in some cases old devices and abandoned ideas have been presented as new ones. In every case it has been the policy to express to the inventor frank opinion of the postal merits of the proposition and to discourage him from incurring useless expense in the construction of costly models and securing patents on devices not available for postal use.

Among the things offered were various attachments and supposed improvements for motor vehicles, rigid and collapsible containers for transporting parcel-post mail, safety envelopes, new designs of labels to replace the present facing slips, locking and fastening devices for pouches and sacks, new styles and types of post-office furniture, articles to facilitate the work of letter carriers, various labor-saving devices, convenient but not essential articles of stationery and of miscellaneous nature, mechanical devices for carrying and delivering mails, new types of pouches and sacks and attachments therefor, roller canceling stamps for parcel-post matter, and plans and devices for conserving twine. None of these has been regarded as worthy to supersede the corresponding equipment or practice, as the case may be, already in use or operation in the service.

COST KEEPING.

The cost-keeping work was extended during the year so as to cover all the operations of the Division of Equipment and Supplies. Monthly reports have been rendered showing the cost of operations in detail and of the work under general classifications. Not only have the mechanical operations in the equipment shops been shown, but also the work of compiling and drawing maps, and the clerical and supervisory work has been classified and the costs analyzed. Review and comparisons of these reports have pointed the way to many opportunities for effecting economy and improvement. Costs were also ascertained of operations in the Division of Rural Mails.

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Reports of costs of work in connection with repairs and upkeep of equipment in the larger post offices have been made up periodically and subject to scrutiny in the department, resulting in many reforms of cumbersome and expensive methods. The costs of the work done in the printing offices maintained in the Postal Service were also ascertained, the amount and nature of the work on each job, and the costs of each item of expense connected therewith being shown.

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TOPOGRAPHY BRANCH.

There were 43,258 post-route maps printed during the year. Of these, 1,545 were sold to the public through the office of the Third Assistant, together with 5,983 county and 1,963 local center maps (blue prints), the balance having been distributed to the postal service, other departments, and Members of Congress.

The economy effected through the revision of the specifications for post-route maps was $5,640.

The following prints were made in the blue-printing plant: 7,964 county maps, 13,330 local center maps, and 10,347 miscellaneous plans, forms, etc.

Satisfactory progress has been made in the work of redrawing and revising compilations of post-route maps, one new map having been completed and 12 others brought up to date during the year. Monthly corrections of the 420 department reference maps were also made.

An accumulation of old and useless reference maps, etc., which has served mainly to take up space, has been disposed of, and all possible sources of information used in the compilation and correction of post-route and rural-delivery maps have been assembled in proper filing order and comprehensively indexed.

Of the 3,010 counties in the United States there are 2,630 in which Rural Delivery Service is in operation. Accurate maps, showing rural service in 984 of these counties, have been completed, while preliminary maps for 755 others, giving similar information, have been drawn. Base maps and other data are in hand which will be used in the compilation of maps of 432 additional counties. Active steps are being taken to procure information from every possible source for use in compiling maps of the 459 remaining counties.

PERSONNEL.

In closing I take the opportunity again to express here my deep appreciation of the loyal and faithful services rendered by the employees of this bureau, who have exerted themselves untiringly in their effort to cooperate in carrying into effect the many improvements and measures of economy presented during the year.

Respectfully,

JAS. I. BLAKSLEE,
Fourth Assistant Postmaster General.

Hon. A. S. BURLESON,
Postmaster General.

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REPORT OF THE SECRETARY OF THE NAVY.

NAVY DEPARTMENT,
December 1, 1916.

To the PRESIDENT:

I have the honor to submit herewith the annual report of this department for the fiscal year ending June 30, 1916, including operations and recommendations and estimates to date. It has been a notable year in naval annals, marking the largest expansion in times of peace and greatest efficiency since the Navy Department was organized under the act of April 30, 1798.

The naval appropriation act for the fiscal year 1917, approved August 29, 1916, stands out beyond all precedent in the entire history of the United States Navy. For the first time the policy of a continuing program for new construction was adopted by a Congress that will go into history as understanding and providing for the Navy better than any of its predecessors. In all essential features the three-year program authorized is that recommended originally to be executed in five years. The 813,000 tons of new construction authorized is greater than the total of the authorization of the 10 preceding acts. The 377,000 tons to be begun as soon as possible is nearly five times the average of the preceding 10 years. The total appropriation of $313,384,212 is more than twice as large as the amount carried by any previous appropriation bill. The department will be able, as a result of this act, to place the ammunition reserves of the Navy for the first time on a basis of that full measure of preparedness which the present war has shown to be so important, as $13,720,000 has been provided for this purpose, and in addition, $19,485,500 has been provided for ammunition and reserves for all the new vessels to be laid down this year.

Our naval legislation in the past has often been criticized as lopsided and unbalanced—material provisions being unaccompanied by the necessary personnel provisions. This criticism does not apply to the legislation of this year. Before the passage of the appropriation act there had been passed legislation providing for utilizing to the utmost facilities at the Naval Academy for the education and training of officers for the Navy. The act authorizes an enlisted force of 74,700 men, and further authorizes the President to increase this number to 87,000 in time of emergency. In addition to this perma-

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nent force, provision is made for the first time for an adequate naval-reserve force, which may be utilized in time of national need. The commissioned personnel is placed on a logical and proper numerical basis by the provision that the number of officers in the line and various staff corps shall bear a constant ratio to the authorized enlisted strength of the Navy. The ratios between the numbers in the various ranks and grades are likewise fixed on a basis proper to meet the needs of the service. In the future, as it becomes necessary to increase the personnel of the Navy to provide for the manning of new vessels, it will only be necessary to obtain the authorization from Congress for an increase in the enlisted force, and the rest of the organization will automatically be adjusted to meet the new conditions.

Several means have been provided for meeting, as promptly as possible, the immediate needs for increase in the commissioned personnel; besides the increase in the number of appointments to the Naval Academy, appointments direct from civil life have been authorized for officers to perform engineering and aeronautic duties.

One of the most important items in the entire act is that which provides a system of promotion by selection of officers of the line of the Navy, thereby insuring certain prospects of promotion for those officers best qualified for the exacting duties and high responsibilities of command of our ships and fleets, and at the same time preserving to the country the services, in the lower grades, of officers of lesser ability, but still of great value, due to their education and training.

The act contains several items which will permit the department to increase its own facilities for the supply of naval material, thereby adding to the country's capacity for the output of munitions, and the present war has demonstrated that one of the greatest problems which any country must face is that of providing the maximum output of material essentials in the minimum of time, and that no country can have too great an industrial capacity for this purpose, including both Government and private plants. A Government armor plant and a Government projectile plant are provided for, and a large appropriation is made available for increasing the shipbuilding facilities of the navy yards. There is also authorized a great naval experimental laboratory, where, with the advice and assistance of eminent civilian scientists and engineers, experimental and development work of the utmost importance will be carried out.

In the field of aviation the act provides funds far in excess of any previous appropriations for this purpose, and will enable the department to provide for immediate necessities in this branch and to do the development work necessary to insure this country that continuous progress which is so essential in any new field of science and engineering.

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The act is so replete with provisions and authorizations for the betterment of all branches of the naval service that it is impracticable to make specific mention of each one within the limits of this report.

The appropriation act not only indicates the earnest purpose to provide an adequate first line of national defense by unprecedented provision for new construction, but also makes manifest the intention that this provision shall be carried into effect as promptly as possible. The act requires all vessels authorized to be laid down within three years; it directs that nearly half of the total, as measured by value, be laid down as soon as practicable; it further directs that this part of the program shall be contracted for, or under construction in navy yards, within six months of the approval of the act; and, finally, it authorizes the expenditure of a sum equal to 20 per cent of the normal limits of cost for the purpose of expediting the construction and completion of all of the vessels authorized.

SHIPS READY BY 1921.

The execution of this program will give the Navy the following vessels, completed and in commission in 1921:

Battleships, first line	27
Battle cruisers	6
Battleships, second line	25
Armored cruisers	9
Scout cruisers	13
Cruisers, first class	5
Cruisers, second class	3
Cruisers, third class	10
Destroyers	108
Fleet submarines	12
Coast submarines	130
Monitors	6
Gunboats	18
Supply ships	4
Fuel ships	15
Transports	5
Tenders to torpedo vessels	6
Special types	8
Ammunition ships	2

These numbers are based on the General Board's estimates of survival for the present vessels of the Navy.

Owing to the fact that the naval increases of the belligerents in the present war are being held as national secrets of the greatest importance, it is impossible at present to give an accurate estimate of the relative standing among naval powers of the United States as a result of the completion of this program.

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ADEQUATE NAVY DETERMINED UPON.

It may be stated with confidence, however, that the act of 1916 shows clearly that this country is now determined to provide and maintain a first line of defense adequate to its needs. In the past—within the short period of less than a score of years—we have seen the Navy of the United States rise from the fourth or fifth position among the world's navies to a good second and then slip back in 1911 until it was a doubtful third. This generation will not again see such an indefinite, halting, uncertain naval policy.

The act of 1916 in its execution will place a heavy burden not only upon the Navy Department itself but upon the constructive facilities of the country. Present conditions as regards labor and material and the unprecedented demand for the construction of merchant shipping to carry neutral commerce render the task of construction peculiarly difficult, but everything indicates that the shipyards will rise to the occasion and accomplish what was regarded as impossible but a short time ago.

HEARTY COOPERATION IN NAVY DEPARTMENT.

As to its own task, the department welcomed the opportunity to demonstrate the capabilities and efficiency of its present organization and personnel. The reorganization undertaken in 1915 was complete, and though somewhat hampered just now, like the rest of the Navy, by the shortage of experienced officers, the Navy Department at present affords an object lesson of sound organization, able and efficient personnel in responsible positions, and, above all, of harmonious and sincere cooperation. In the voluminous literature, past, present, and probably future, on the subject of the Navy Department organization, it seems usually assumed as an axiom that the responsible advisers and assistants of the Secretary—officers of the Navy whose duties are arduous and responsibilities great—are self-seekers, or, at best, interested only in the aggrandizement of their various corps; that they spend their time in disputes with each other, which the Secretary must decide; and that it will never be possible for the department to operate without a number of coordinators or harmonizers to discipline and direct the bulky team. My experience in the department early led me to feel that the coordinators were more in need of coordination than the coordinated; that the Navy was now too big and important to place, or tolerate, in any responsible positions in the Navy Department, officers of the characteristics ascribed the advisers and subordinates of the Secretary in so much of the imaginative literature dealing with the department, and that every corps and branch of the Navy was well supplied with capable officers, not only willing and anxious to work in harmony and co-

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operation with officers of other corps and branches of the Navy to the common end of naval efficiency, but incapable of working in any other way. It is common knowledge that in every responsible position in the department, as well as in command afloat, the fittest men have been selected.

I have, of course, found my advisers of differing opinions at times. I have found that differing opinions need not involve acrimony or friction. As to the few cases where I have found it necessary to decide between radically different views there has not been a single instance under the present organization of the department where the decision has not been accepted and carried out with the best of loyalty and good faith by all concerned. I see absolutely no reason why, with the present organization, there should ever be reason in the future to complain of faulty team work in the department.

THE CHIEF OF NAVAL OPERATIONS.

The creation by the act of 1915 of a Chief of Naval Operations, given by the act of 1916 the rank of admiral, so that in the Navy he now ranks next to Admiral Dewey, "the Admiral of the Navy," has secured to the department for the first time, in connection with the bureau chiefs named by the President, what naval experts at home and abroad have declared to be the best naval organization that human wisdom has devised. While civilian control, the essential in a Republic, has been preserved, responsibility has been placed upon the Chief of Naval Operations and the chiefs of the bureaus. Experience of a year and a half of earnest cooperation, without the semblance of friction, has demonstrated the wisdom of this new organization in the department. Ashore and afloat, the Navy is working in hearty cooperation and the spirit of the service is seen in the perfect teamwork that has given new high records in target practice, war maneuvers, improved communication, survey of possible auxiliaries in time of war, equipment for merchant ships when called into service—in a word, better conditions in the Navy in every department testify to the perfection of the organization which succeeded the former loose and haphazard system which was replaced in 1915 by the present organization. Under the direction of the Chief of Naval Operations, Admiral William Shepherd Benson, and his efficient corps, the operations of the fleet and its preparation for war have been directed by master hands. I am printing as Appendix B to my report the summary of the year's work and development under the new organization effected under the Chief of Naval Operations.

ENORMOUS TASK IMPOSED.

The enormous additional task imposed upon the department by the act of 1916 has fallen first upon those who are responsible for ma-

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terial, and has been handled, so far, without a hitch and with record-breaking speed. Not only will the strain of material problems continue for some years, but as already indicated, the act of 1916 places upon the department the responsibility for enormous personnel expansions. The problems incident to this have already been taken in hand. They must be satisfactorily solved if the Greater Navy of the United States is to be in the end what the country demands and has a right to expect. Questions involving the personnel and its efficiency and skill are not so tangible and susceptible of analysis and comparison as when material is in question, and hence the efficiency of naval personnel is not so easy to determine as that of naval material. But we must not forget Mahan's dictum that experience shows that good men in poor ships will win against poor men in good ships. Our men and ships must be of the best.

THE BUILDING PROGRAM RECOMMENDED.

With regard to the number and types of ships for which I recommended appropriations at the approaching session of Congress, I felt myself bound by the act of Congress fixing a three-year program. I therefore recommend as the building program for the fiscal year 1918 the following:

Number and type of vessel:

3	battleships.
1	battle cruiser.
3	scout cruisers.
15	torpedo-boat destroyers.
4	fleet submarines.
14	coast submarines.
1	fleet submarine tender.
1	destroyer tender.
42	

The navy yards are not yet prepared to add materially to the facilities for construction. The private yards have obtained more contracts for merchant ships in the past year than in a long period, and their facilities for building ships for the Navy are limited. Moreover, the revival in shipbuilding and the big naval program of the fiscal year 1916 have about taxed their capacity. In addition, the number of skilled men in the shipbuilding industry has not grown with the increased demand, and the demand for materials of all kinds has caused a rise in price and a delay in delivery. It will tax the Government and private yards, even after new facilities are provided, to build the ships recommended for the fiscal year 1918 and complete those heretofore authorized. The General Board recommends a larger program than is contained in my estimates. There

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are two reasons why my estimates, made before the report of the General Board had come to me, do not embrace a larger building program. The first is that Congress at its last session fixed a specific three-year program for the construction of 156 ships and appropriated money to begin work on 66, leaving 90 to be commenced during the coming two years. My recommendation is to begin on approximately one-half of the 90 in the fiscal year 1918, leaving the other half to be appropriated for in the naval bill for the fiscal year 1919. The total estimates for the fiscal year 1918 are very large, necessitated by the program already adopted, and I have not felt it my duty to advise the increase that the large number of ships proposed by the General Board would require. There is another and an impelling reason—the private and public yards can not, unless they abandon building merchant vessels, build a larger program than I have recommended. In its report (printed as Appendix A) the General Board says:

> The General Board is of the opinion that the capacities of our shipyards should be utilized to the maximum in new construction, and therefore recommends such numbers of vessels in various types as it believes can be laid down in the fiscal year 1918.

The crowded condition of shipyards, the difficulty of securing labor and material, and the reports made to me by the officers of shipbuilding yards all unite in convincing me that the largest program that can be constructed, under present shipbuilding conditions in this country, is that which I have recommended, and which I understand meets the policy which Congress incorporated in the last naval bill, to wit, 156 ships to be commenced in three years. Experience in securing contracts for the building of the ships already authorized, the delays encountered by lack of skilled labor, and the difficulty of promptly obtaining material convince me that the program I have recommended is as large as can be constructed, unless work on merchant ships is abandoned and slips thus employed are utilized for Navy vessels.

VESSELS BUILDING AND AUTHORIZED.

Since my last report there have been added to the active fleet in commission four battleships of a type at least as powerful as any possessed by any other naval power. These vessels, the *Oklahoma*, *Nevada*, *Pennsylvania*, and *Arizona*, represent a tremendous increase in the instantly available power of the Navy to meet any sudden and unexpected emergency, as they increase the number of battleships of the dreadnaught type from 8 to 12—a numerical increase of 50 per cent, and a far greater proportional increase in fighting power.

In addition to the four battleships, there have been added to the fleet during the past year the destroyers *Tucker*, *Conyngham*, *Porter*,

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Jacob Jones, *Wainwright*, *Sampson*, *Rowan*, *Davis*, and *Wilkes*, the submarines *L–1*, *L–2*, *L–3*, *L–4*, *L–9*, *L–10*, and *L–11*, and the submarine tender *Bushnell*.

There are under construction at the present time the following vessels, authorized prior to the naval bill of August 29, 1916: Battleships *New Mexico*, *Idaho*, *Mississippi*, *Tennessee*, and *California;* destroyers *Allen*, *Shaw*, *Caldwell*, *Craven*, *Gwin*, *Conner*, *Stockton*, and *Manley;* submarines *L–5*, *L–6*, *L–7*, *L–8*, *M–1*, the *Schley*, *N–1* to *N–7*, inclusive, *O–1* to *O–16*, inclusive, and fleet submarines *No. 2* and *No. 3;* fuel ships *Maumee* and *Cuyama;* transport *Henderson;* and supply ship *Bridge*.

Of these vessels the *New Mexico*, *Tennessee*, *California*, *Shaw*, *Caldwell*, *Craven*, *L–8*, *O–1*, *O–2*, *Maumee*, *Cuyama*, *Henderson*, and *Bridge* are under construction in Government navy yards. In addition to these, certain navy yards were directed, on August 29, 1916, the same day as the approval of the naval bill authorizing their construction, to proceed with the building of fuel ship *No. 16*, hospital ship *No. 1*, and gunboat *No. 21*.

The progress of work on the vessels under construction, both by contract and by navy yards, has, in the main, been satisfactory, in view of the unprecedented industrial activity extending throughout the whole country, and resulting in great shortage of both labor and material, these conditions being peculiarly acute in the steel and shipbuilding industries.

PLANS MADE IN RECORD TIME.

In regard to the vessels of the three-year program, for which appropriation was made in the last naval bill, as pointed out elsewhere in this report, the concentrated and coordinate efforts of all sections of the department permitted the issue of plans and specifications in record time. Bids have already been received and opened on all vessels except the battle cruisers and the ammunition ship. In addition to the fuel ship, hospital ship, and gunboat, work in connection with the construction of which has already been started in navy yards, contracts have been awarded for 20 destroyers, and contracts have been or will be placed at a very early date for all the other ships for which appropriations have been made, except the scout cruisers, for which only one bid was received within the appropriation.

DESIGNS OF NEW SHIPS.

The desire of the administration and of the Congress to expedite in every way possible the construction of these vessels presented to the department a problem involving the greatest difficulties. Before any actual work whatsoever can be undertaken on new vessels, it is

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always necessary to prepare complete specifications and designs, in which are embodied the military characteristics necessary for vessels of the various classes to meet the especial tactical and strategical needs of the United States. In the preparation of each design it is necessary to study thoroughly a great many new problems and evolve methods providing the vessels in question with all items, the necessity and desirability of which have been demonstrated by experience in our own fleet, information received from abroad, or by scientific or engineering progress in the world at large. The major portion of this design work is performed in the three technical bureaus—Construction and Repair, Steam Engineering, and Ordnance. The preparation of the design of each separate type forms a distinct problem and requires the concentrated efforts of the staffs of these bureaus for varying periods. The three-year building program, as adopted by Congress, included 15 separate and distinct classes of vessels, of which 10 were finally directed in the appropriation act to be laid down as soon as practicable. These included many more different designs than had ever been prepared before in any one year. As soon as the magnitude of the task became apparent, authority was requested to employ a large number of additional draftsmen and other technical employees, in order to expedite this work to the greatest extent possible. The necessary authority was granted by Congress in the urgent deficiency bill of February 28, 1916. I am pleased to report that, due to the increased forces and the hearty cooperation of the three bureaus and to the unremitting efforts of all of the officers and civilian employees concerned, it was possible to advertise for bids for the 4 battleships, 4 scout cruisers, 20 destroyers, and 29 submarines on the same day that the appropriation bill was approved by the President. On this same day instructions were issued to the navy yards—Boston, Philadelphia, and Charleston—to proceed at once with the construction of the fuel ship, the hospital ship, and the gunboat, respectively, the plans for these vessels being ready. The designs of the battle cruisers were completed and issued to prospective bidders on October 2, 1916. The plans of the ammunition ship were completed November 1, 1916.

As several types of vessels of the program are novel in our service, and as experience so far in the European war has indicated the desirability of urging development of former types along certain lines, the designs this year have involved an unusual number of new and, in many cases, difficult problems.

Particular attention has been devoted to improvement of the protection of capital ships against underwater torpedo attack. The prosecution of experimental investigations along this line has continued during the year, and has indicated so far that the conclusions reached in connection with the designs of battleships 43 and 44 were

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sound, and that the protection under water of our new battleships is markedly superior to that of any previous battleships in any navy.

The new battleships will carry 16-inch guns instead of 14-inch, as carried by previous United States battleships. The war seems to have impressed upon practically all the combatants the desirability of increasing the caliber of their main battery guns, and although not all the officers of the United States Navy are convinced that this is a necessary development, it is believed the vast majority are in line with the recommendation of the General Board, approved by the department, for the adoption of the 16-inch gun.

The new battle cruisers will be the largest and most expensive vessels in our service to date. There is some opposition in the service to this type of vessel, owing to the feeling of some officers that it is substantially a repetition of the armored cruiser type of 12 or 15 years ago, now generally recognized as obsolete. The main reason for the disappearance of the armored cruiser type was that although its speed was superior to that of the battleship of its day the superiority was not very great, so that the speed of a battleship of to-day is substantially the same as that of the armored cruiser of a dozen years ago.

Our new battle cruisers have been designed with an enormous and unprecedented horsepower, calculated to give them, in spite of their great size, a speed of 35 knots an hour. The margin between the speed of our latest armored cruisers and that of contemporary battleships was about 4 knots only, at that time battleship speed being about 18 knots and armored cruiser speed about 22 knots. The margin between our 21-knot battleships of to-day and our new 35-knot battle cruisers is very much greater—being 14 knots. While battleship speeds will undoubtedly be increased in the future, it is believed that these vessels will retain their advantage of speed, as compared with the heavily armored battleship type, throughout their life.

ADDITIONAL POWERS MAY BE NEEDED.

The last naval bill does not give to the department any additional or extraordinary powers in connection with placing the contracts for these vessels or in obtaining materials for their construction. It is hoped that the necessity will not arise of having to ask for such powers, as a number of shipbuilders and manufacturers have shown an attitude of willingness to assist the department in meeting the unusual situation created by the desire of the country to commence and to expedite an entirely unprecedented naval program at a time when the industrial resources of the country are already taxed to their utmost capacity in meeting the demands of tremendous trade activity, both domestic and foreign, in every branch of business. It

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may be necessary, however, for Congress to enact legislation of this character to insure the early completion of the program of construction.

NEW CONSTRUCTION.

The following table shows the vessels authorized in the three-year building program—those for which the first appropriations have already been made, those for which estimates for the fiscal year 1918 have been submitted to cover the first year's work, and those which will remain to be covered in the naval bill for the fiscal year 1919:

Type.	Authorized in 3-year program.	Appropriated for in naval bill for 1917.	Recommended to be appropriated for in naval bill of 1918.	Remaining to be provided for in naval bill, 1919.
Battleships	10	4	3	3
Battle cruisers	6	4	1	1
Scout cruisers	10	4	3	3
Destroyers	50	20	15	15
Fleet submarines	9	.....	4	5
Coast submarines	58	30	14	14
Fuel ships	3	1	.....	2
Repair ships	1	.....	.....	1
Transports	1	.....	.....	1
Hospital ships	1	1	.....	.....
Destroyer tenders	2	.....	1	1
Submarine tenders	1	.....	1	.....
Ammunition ships	2	1	.....	1
Gunboats	2	1	.....	1
Total	156	66	42	48

In the same manner as prior to the adoption of the three-year program the department has since that time been carefully studying the occurrences of the European war, as affecting types of naval vessels. There have not developed, however, any facts which would cause the department to recommend any changes in the numbers or types of vessels as provided for in the program.

The most notable advance which the department contemplates in the development of any of these vessels is in the case of the battleships. In these, the definite adoption of a high-powered 16-inch gun will cause a marked increase in the size and power of the new vessels, and this will be accompanied by an increased efficiency in the defensive features against attack by either guns or torpedoes.

INDUSTRIAL ACTIVITIES AT SHORE STATIONS:

The results have more than justified the policy of this administration of increasing the industrial activities of our shore stations. As a business proposition, the Navy has been saved large sums. Yards which have previously been a financial drain upon the Naval Establishment have become not only self-supporting, but have actu-

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ally in addition to paying the cost of their own maintenance decreased the total expenditures of the Navy Department for various manufactured materials. What is even more important, the military value of these yards has been enormously increased. In time of war, these yards are now far better fitted to repair damaged ships, to convert merchantmen, to supply the fleet with mines, with torpedoes, and with the hundred and one things necessary for their equipment at short notice.

One of the most striking lessons of the present European war has been the need of well-equipped shore stations, where repairs and building work may be carried out. A few years ago many naval experts recommended the closing of some of our yards and the concentration of our shore stations into a few units. The experience of the war has convinced these experts that naval warfare under modern conditions calls for expansion rather than contraction of existing shore stations. A navy yard manufacturing plant in time of war is an immediate source of war supplies, manufactured by men trained for years in that work, with tools already assembled and in operation, where ships can be outfitted and repaired with a minimum of delay. The military value of such stations is now absolutely beyond question, and the department's policy of not only maintaining but enlarging them has thus been justified not only from an economic but from a military viewpoint as well. The expansion of our yards has been gradual, care being taken that every increase is justified before it is made. In what are termed our industrial yards, which include Portsmouth, Boston, New York, Philadelphia, Washington, Norfolk, Charleston, Mare Island, Puget Sound, and the torpedo station at Newport, the total number of men employed has increased in the last four years from 16,898 to 24,382, and their daily pay roll from $46,027.35 to $73,091.12. As every manufacturer knows, an increase in work and in working force, if done in a businesslike way, means a reduction of proportionate overhead charges and a more economical working of the plant. This has been the case in the navy yards. Take, for example, the cost of repairs made in navy yards to our own vessels. In 1913 this cost amounted to $6.19 per ton for the total tonnage of our Navy at that time. In 1916, figured on the same basis, this has been reduced to $5.40 per ton, a showing all the more remarkable when it is considered that over half of this expense was for materials, principally iron, steel, copper and brass, and that these materials have advanced from 50 to 100 per cent in cost during that time. The output in manufactured products that go on ships has also been largely increased, with a corresponding decrease in the cost of each article manufactured.

At the torpedo station, by doubling the number of men employed, we have increased the output of torpedoes and other like material

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400 per cent, and we are now making these torpedoes at 25 per cent less than we can buy them. By installing our own plant for the recovery of waste metals at Portsmouth we have reclaimed 1,937,784 pounds of copper and brass which would otherwise have been sold for junk, and the yards during the same period have used over 4,000,000 pounds of scrap metal in place of new metal. This represents a saving in the purchase of 6,000,000 pounds of new metal at a time when copper and brass are at the highest point they have ever reached. So far as possible the department is carrying out a policy of concentrating the manufacture of particular articles at particular places, with satisfactory results in economy. In addition to the metal-recovery plant at Portsmouth electrical fittings of various kinds and boat outfits are being turned out at exceedingly low rates of cost. At Boston the tremendous anchor chains for our new dreadnaughts are being turned out. Serious problems in their manufacture, on account of the fact that they are heavier than chains have ever been made before, have been satisfactorily solved. Boston now manufactures chain, rope, and anchors for the Navy. At New York radio outfits are manufactured for the fleet. At Norfolk, in addition to the manufacture of paint, of which the Navy uses large quantities, we have undertaken the manufacture of mines with most gratifying results, and the clothing factory at Charleston has more than justified its establishment.

In no particular branch of the Navy has greater improvement been shown than in our shore stations and in the economical and efficient business administration thereof.

DRY DOCKS ESSENTIAL TO THE FLEET.

Modern battleships, battle and scout cruisers require constantly the highest skilled attention for their operation and repair and often sweeping changes, so that these vessels may be kept well abreast of the times and potentially able to cope with similar vessels of other naval powers.

These principal ships of a modern navy once built and commissioned can not indefinitely maintain the high sea and retain their efficiency. They must frequently return to our home stations for wear-and-tear repair and modernizing changes. So that irrespective of the use of navy yards for actual shipbuilding, a fleet itself is dependent on them for its continuation as a fleet ready at all times and prepared for any possible emergency. The Navy exists for possible use in offensive or defensive warfare, and for that reason our navy yards must be so planned and laid out that they not alone can take care of all of the requirements that may be imposed upon them by vessels of the Navy in times of peace, but also having in mind the possible demands upon them in case of hostilities. With

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the lessons of the European war before us, it is apparent that the docking and repair facilities in our navy yards should be as nearly as possible adequate in location and extent to fully and with dispatch make good the destruction and damage incident to warfare.

DRY DOCKS BUILDING AND AUTHORIZED.

The first session of the Sixty-fourth Congress authorized the construction of two dry docks capable of taking the largest vessels that can pass through the Panama Canal. Plans and specifications for these two docks at Norfolk and Philadelphia are complete, and work on the Norfolk dock will soon be started. The Philadelphia dock will follow. The large dry dock constructed at Balboa, Panama Canal, has been completed and is now ready to receive vessels.

From most recent reports the large dry dock under construction at Pearl Harbor is progressing satisfactorily. The indications are that by the first part of the year 1920 we will have four governmental dry docks, three under the control of the Navy and one under the canal, capable of docking the largest vessels projected.

In addition to these four docks a dock is under construction by the Commonwealth of Massachusetts at Boston. While the progress of construction has not been fully up to expectations, the work is continuing and should certainly be completed before the year 1920.

Under authority granted by Congress, contract has been made with the Union Iron Works for the use of a dry dock of the maximum size which this company has undertaken to build at Hunters Point, San Francisco. The contract with the Navy Department guaranteeing a minimum usage of this dock for a period of six years undoubtedly played a large part in making possible the inception of this commercial venture. I am inclined to believe there is opportunity for an extension of this policy of encouraging the construction of dry docks by private enterprise, as by this means dry-docking facilities of greatest importance to the Navy, in case of hostilities, may be secured. With these six large dry-dock projects completed, the Navy will have available three docks of maximum size on the Atlantic coast, one on the Pacific coast, one at Panama, and one in the Hawaiian Islands. Even so, docking facilities still fall short of the undoubted naval needs for ships built and authorized. The lack of dry docks sufficient in number and availability would constitute a source of weakness in times of stress.

At the Charleston yard there is at the present time a modern dock capable of taking care of vessels of the *Florida* class. It is sufficient in width and depth for larger vessels. This dock should be lengthened so that, if necessary, it could be used for docking larger battleships and cruisers. I have come to this conclusion because to lengthen this dock would be comparatively inexpensive and the improvement could

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be carried through within a year and one-half. In the same way the dry dock recently completed at Puget Sound is too short to receive the battle cruisers authorized. This dock should be lengthened to take vessels 1,000 feet long.

SAVING IN "ARIZONA'S" CONSTRUCTION.

The construction of the *Arizona* at the New York Navy Yard demonstrated that there has been an increase of efficiency in new construction at that yard. The actual cost of the *Arizona*, as compared with that of the *New York* and *Florida*, the preceding battleships built at the New York yard, was much less, notwithstanding the present strenuous condition due to the great war in Europe, which has increased all expenses for material and labor in shipbuilding in this country.

The actual saving, as reported by Capt. G. E. Burd, industrial manager of the New York yard, in the construction of the *Arizona* was $678,239.82, but due to the scarcity of labor it was necessary to pay $133,729.95 in bonuses for overtime work, which would not have been required in ordinary times. Without the payment of these bonuses the saving would have been $811,969.77. The comparison of the cost per ton of the *Florida*, *New York*, and *Arizona* is illuminating. The cost per ton for building the *Florida* was $286, the *New York* $233.53, and the *Arizona* $210.62. That this decrease in cost per ton was made, notwithstanding the considerable increase in wages and cost of material and increasing number of expensive appliances installed in new ships, demonstrates the wisdom of ordering the construction of this ship at the New York Navy Yard.

SHIPBUILDING AT NAVY YARDS.

At the beginning of my administration but one of our navy yards was equipped and capable of building battleships—the navy yard, New York—and another navy yard, at Mare Island, equipped and capable of building auxiliary vessels. The cost of all of these navy yards and their equipment represented an investment of about $150,000,000, and they are undoubtedly capable, as has been demonstrated, of being employed to a far greater extent than had been for the benefit of the Navy in the construction of ships. With this end in view, the first step taken was to provide building ways and equipment at the Philadelphia and Boston Navy Yards so that these two yards could construct auxiliaries and cruisers. Then the Portsmouth (N.H.), Norfolk (Va.), and Charleston (S.C.), Navy Yards were provided with ways and equipped for the construction of submarines and torpedo-boat destroyers, respectively. This was followed by greatly improving the battleship construction facilities at New York, and enlarging

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the construction capacity of the Mare Island Navy Yard so that a battleship is now being constructed at that yard; consequently we are now able to build and are building battleships at two of our navy yards, auxiliary vessels at two other yards, destroyers at two other yards, and submarines at one yard.

In addition to this accomplishment, the recent naval act authorizes the expenditure of $6,000,000 for fitting navy yards for ship construction, and steps are being taken to fit yards for the construction of capital and other ships. It is confidently expected these improvements will be far enough advanced so that some of the ships to be provided for in the naval act of the coming session of the Sixty-fourth Congress can be laid down at these yards. I am convinced that we have been well justified and reached a wise decision in taking the steps which have been taken to fully utilize our navy yards for shipbuilding construction. The offers that have been received from the private shipbuilding companies for the construction of the ships authorized indicate that the capacities of these private plants will be taxed to the fullest in bringing to completion the ships already authorized. All private yards are at the present time, and will be perhaps for several years to come, devoting a large part of their capacity and energy to the building of commercial vessels, and it is thus apparent that if we had not made provisions, as we have done, for equipping navy yards for naval vessel construction, we would have been seriously embarrassed and perhaps found it impossible to construct within a reasonable time the ships for which the last session of Congress made appropriations.

ORDNANCE:

In the important Ordnance branch of the naval service the resourcefulness of the Navy has been nowhere more manifest. Progress may be reported in the manufacture of powder at decreased cost and in the extension of facilities for that purpose; in the difficult work of both perfecting the design and increasing the output of our torpedoes; in the manufacture of big guns and in the effort to increase the capacity for such manufacture; in increasing the stock of shells and raw material indispensable for the making of powder. Although a serious handicap, particularly in the manufacture of powder at Indianhead, has been the loss of employees who have accepted places with private powder manufacturers able to pay abnormally high wages on account of the prices received for their product, it is nevertheless a fact that at the torpedo station at Newport, R. I., since March, 1913, the number of employees has increased practically 100 per cent, or, to be exact, from an average of 543 to an average of 1,122 men; and the wages paid have increased from $449,155 a year to $1,035,717 a year, while the sum of $260,000 has

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been expended for ships and storage buildings and $160,000 for new machinery, and estimates have been submitted for the purchase of more machinery to the extent of $100,000. The usual amount for maintenance, $80,000, was increased last year to $100,000, and this same amount has been voted for 1917. The total product of the torpedo factory, which was established in 1908, to the end of 1915 was 256 torpedoes, while the output of torpedoes for the calendar year may reach as high as 150 or 160, and it is expected that this number will be increased next year. At the same time torpedoes are being manufactured at the Washington Navy Yard. A large number of small machine tools were available there for this work, and advantage was taken of these resources to manufacture torpedoes. It is quite a new industry at the gun factory, and the output has not been large. However, it is now on a good working basis, and we count on receiving about 100 torpedoes per annum from this plant. Some of its product has been delivered, given range trials, and finally accepted.

A NEW TORPEDO DESIGNED.

The work of the Bureau of Ordnance this year has been characterized by originality and invention. A new torpedo has been designed by the bureau. The torpedo has been in a state of evolution and development through the past half century, in which period parts have been added from time to time until a type of torpedo has come into use the general arrangement of which is by no means ideal. The bureau believes that in the new type it has designed it has secured the simplification of manufacture, the easier repair of injured parts, and the quicker adjustment of new devices. In addition to this, the new design will be the property of the United States Government, and only in its minor features will it contain parts the use of which will necessitate the payment of royalty by the Government.

PROFITABLENESS IN THE MANUFACTURE OF POWDER.

In my report last year I was at some pains to point out the profitableness of the Navy manufacturing its own smokeless powder, and it was shown how the Government thereby was able to reduce the price of powder from 80 cents paid to a private company until Congress made an investigation of the cost, when a reduction was made to 53 cents; and later still, by the aid of the Sixty-third Congress in authorizing the increase of the product at Indianhead to something like 4,000,000 pounds, to reduce the price to the Navy to about 34 cents a pound. This year the work of enlargement has been completed, and the factory is now on the contemplated basis and is producing powder at the rate of well over 6,000,000 pounds per annum, or practically double the output for the fiscal year

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1912–13. In 1915 the sulphuric and nitric acid plants were enlarged to a sufficient extent to care for the entire needs of the powder factory, so far as those acids are concerned. To have accepted acid at the lowest price quoted under competitive bidding would have cost, for a six months' supply, about $630,000. The existing plant was extended for $180,000, and in six months has manufactured the amount required at a cost of $270,000. That is, we paid for the plant, manufactured the acid, and still saved about $180,000 over quoted prices. This has done away with the cumbersome and costly method of transporting acid in tanks from Washington down the Potomac River to Indianhead. The cost of powder for the fiscal year 1916 has increased substantially, owing to the great advances in prices of raw materials. This embraces notably the cost of acid procured by private contract, the cost of nitrating cotton and of alcohol. The first of these items would have been inconsiderable had the enlargement of the powder factory embraced originally the enlargement of the acid plant. Money was appropriated in the 1917 bill for the purchase of a war supply of nitrate of soda and providing for the necessary houses for its storage. The amount of money appropriated will procure about 30,000,000 pounds of this essential material, and I am submitting in the 1918 program estimates for augmenting this reserve by an equal amount. Nitrate of soda can be stored for an indefinite period without any deterioration whatever, and it is a wise policy to have a sufficient quantity of this material safely stored in this country against the possible contingency of the only source of supply, namely, Chile, being closed to us in time of war.

INCREASED CAPACITY OF GUN FACTORY.

The gun factory has continued working to its full capacity on the manufacture of guns and gun carriages. Orders have already been given for twenty-four of the fifty 14-inch 50-caliber guns required for the battle cruisers in the 1917 building program. Contracts for the forgings have been placed and deliveries will be made in ample time for the installation of the guns on new vessels.

INCREASING POWER OF GUNS.

Last year a 16-inch 45-caliber gun was proved, with excellent results, and guns of this type are to constitute the main battery of the four battleships appropriated for in the 1917 bill. However, with a view to still further increasing the power of guns of this caliber, we have designed and are constructing one of still greater chamber capacity and greater length. If this gun fulfills our expectations, similar guns will be constructed for the 1918 battleships.

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WISDOM OF MOUNTING GUNS THREE TO A TURRET.

The system of mounting guns three to a turret, as effected on the *Pennsylvania*, *Nevada*, and *Oklahoma*, has undergone trial in service, and results show the wisdom of adopting this scheme. Its principal advantages lie in the decreased weight of armor required for a given number of guns, together with an arrangement of the emplacements on board ship that is most convenient from a structural standpoint.

ANTIAIRCRAFT GUNS INSTALLED.

A new antiaircraft gun has been installed on several of the battleships, and many others are being rapidly provided with this new weapon. Its design has been most carefully and patiently worked out, and the Navy will be well prepared afloat against aircraft attack.

BATTERIES FOR AUXILIARY SHIPS.

A scheme is well in hand for augmenting our supply of guns for batteries for auxiliary merchant ships to be mounted in case of war. The sum of $1,650,000 was appropriated in the 1917 bill, and this sum was intended to take care of one-half the project. The prices of labor and material have advanced so much that the amount has been insufficient to cover all of the first half of the program, which is well under way notwithstanding this handicap.

ADDITIONAL LAND FOR GUN FACTORY.

The 1917 appropriation bill carried with it funds for the purchase of additional land adjacent to the present gun factory. Provision has also been made for a new gun shop to be erected on the additional ground, which, with the existing facilities, will double our capacity for gun building and relining. Sufficient money was appropriated to push the construction of the shop well along, and funds have been asked for this year to complete the shop and provide it with the necessary machinery.

MAKING UP DEFICIENCIES IN SHELLS.

Due to a liberal appropriation for the purpose, contracts have been let and the work is already under way of supplying the Navy with all the deficiencies that have accumulated in shell of all calibers except the 14-inch. A contract has been made for a large number of shell to make up the 14-inch deficiency, and additional contracts are in preparation to complete this work. The stock of powder is all that can be desired, and the manufacture of necessary accessories outside of shell and powder has been pushed so vigorously at the Washington yard and elsewhere that the situation in this respect is quite satisfactory.

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LARGER PROVING GROUND NEEDED.

The Bureau of Ordnance has been working under a most serious handicap, due to the lack of an efficient proving ground to meet modern naval artillery requirements. The existing proving ground at Indianhead was established some 25 years ago, when the gun ranges that have been attained to-day were undreamed of. The geography of the place will not permit of its extension to meet existing conditions, and I deem it important that a new location be sought, where necessary experimental work can be carried on.

ARMOR-PLATE PLANT.

In three annual reports I have urged upon Congress the wisdom of making an appropriation for an armor-plate factory. Though this country has long furnished the largest quantity of the raw material for armor plate, we purchased the supply needed from foreign manufacturers until Secretary Whitney saw that it was the part of wisdom to have it made in our own country. For years the manufacture of armor plate has been confined to three companies, which named their own price, and the Navy Department has paid extortionate prices. Secretary Herbert advocated a Government plant. Congress appropriated the money for an armor plant in 1900, but a qualifying provision was inserted in the bill, and it was not erected. In the meantime the manufacturers, without competition, fixed to suit themselves the prices charged the Government, until Congress intervened. Even then the price was abnormally high. On March 3, 1913, the price charged was $454 per ton. When the three concerns bid identically the same price in November, 1913, I rejected all bids and demanded competition and asked Congress to appropriate money to build a plant and prevent a continuance of the price fixing by the three companies manufacturing the product. As a result the price was reduced to $440 and a saving of $111,875 was effected on the *Arizona* over the price charged for the *Pennsylvania* armor; the price was reduced to $425 per ton, and $640,538 was saved on the *New Mexico*, *Idaho*, and *Mississippi;* the price was $425 per ton, and $419,896.80 was saved on the *Tennessee* and *California*, and the latest bid, made in November, 1916, was $420, which gives a saving on the *Maryland*, *Washington*, *West Virginia*, and *Colorado* of $984,585.60 over the price charged the Government before the 4th of March, 1913. These savings in armor plate, contrasting the prices paid since the 1913 refusal to award contracts without even the semblance of competition, aggregate in less than four years the rather neat sum of over $2,000,000. It was saved over prices formerly charged because the Navy Department, making public the lack of competition, refused to pay the higher prices demanded, and urged

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Congress to erect a Government plant. Since the armor-plate manufacturers abandoned competition and fixed the price by understanding, the Government has paid for armor, above a reasonable price, enough money to have constructed the best plant in the world.

The Sixty-fourth Congress appropriated $11,000,000 for an armor-plate plant, plans are being prepared, and early in the new year work will commence on its construction. When completed, not only will the Government be in a position to make a portion of its armor at lower prices than it has been paying, but improvements in the manufacture of armor plate by our experts will belong exclusively to our Government, an advantage not to be lightly regarded.

FACTORY FOR MANUFACTURE OF PROJECTILES.

Upon the recommendation of the department, the first session of the Sixty-fourth Congress appropriated money to build a projectile factory. The condition which made this appropriation imperative was briefly as follows: The Navy wants armor-piercing projectiles, but it does not want an inferior quality of armor-piercing projectiles, such as some manufacturers are willing to call "armor-piercing" and are willing to sell for such. The manufacturers of this country, although they have ample capacity for manufacturing armor-piercing projectiles, and although they know that projectiles in accordance with the requirements of the Government can be produced, are unwilling to undertake their production save at a price 60 per cent or more higher than their contracts of 1914. What is the answer? There can be only one answer; that is, for the Navy Department to own and operate its own projectile plant, which will enable it to fill its requirements and possibly to improve over the qualities now demanded of private concerns. Not only did private companies fail to supply projectiles that measured up to the specifications, but the remarkable thing was that three companies usually bid within a few dollars of one another. It was evident that they were not in real competition. The Government, when such conditions prevail, must provide for the manufacture of at least a portion of these indispensable projectiles.

TARGET PRACTICE:

The feeling of apprehension over national preparedness, more or less well defined, which has been aroused in the minds of the American people as a result of the European war, has extended to the matter of target practice. In view of this it is gratifying to be able to state, not in any spirit of boasting, but merely as an expression of steel-cold fact, that the American Navy has not only equalled, but in battle target practice has actually excelled the best records believed to have been made in recent European naval battles. This is

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proven by the scores made in the winter practice at Guantanamo in February and March, in which all ships, at a mean battle range, averaged 11 per cent of hits. The dreadnaught class of battleships, at a long battle range, averaged 7 per cent of hits, and at a mean battle range this same class of ships averaged 21 per cent of hits.

At the Guantanamo practice referred to above the ships were firing at screen targets 90 feet long by 30 feet high. To obtain the percentages as stated above the shots were plotted on a battleship 600 feet long, 95 feet beam, and 30 feet freeboard.

The department is gratified but not satisfied with the results obtained in this year's practices. These results have been secured as a result of careful study and investigation by naval experts. Prior to 1903 all our target practice was at short range. We were using a range of about 1 mile, and it was then the opinion that naval battles would never be fought at distances greater than 2 or 3 miles. The possibility of training people to shoot at the "enormous range of 7,000 yards" was then considered absurd by some foreign authorities. The evolution of our target practice was along these lines: With improvement in the accuracy and rapidity of fire, and with the improvement in gun gear, we began experimental shooting at 4,000 yards with the ship at anchor and the target moored. We went from this to 6,000 and 7,000 yards with the target under way. This aroused the greatest enthusiasm amongst officers and men, as all the firing was competitive, and, in addition to the long-range practice, there was usually held short-range practice in which the guns fired singly. This enabled us to compare the efficiency of the pointers and crew of each gun with every other gun in the Navy of similar class.

As a further step toward increased efficiency in big gun work in 1914, boards of inspection were appointed. They found a lack of interest in gunnery due to the lack of proper preparation. Everything seemed to be centered on the development of the fire control, and for the time being the very important element of human interest, so far as the individual turret crews and gun crews were concerned, was not developed as it had been in previous years. Meantime it was found that exceptional records were being made in the fall practice of 1914 in the elementary practice of the *North Dakota* under command of Capt. C. P. Plunkett, and that, too, with old guns of inferior caliber. The latter's report attributed the splendid record which his ship made in the first place to a system for locating errors, and in the second place to a plan for determining with reasonable certainty the causes of practically all misses. This system was then put into effect by Admiral Mayo in the first division of the Atlantic Fleet, and an improvement followed similar to that which was noted on the *North Dakota*. And later still it was ordered by Admiral Fletcher, then commander in chief, to be applied to all ships whose

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elementary practice had been delayed. Lieut. Commander Bingham, who had served under Capt. Plunkett, was made gunnery officer of the Atlantic Fleet and Capt. Plunkett's genius has been utilized by transferring him to the department as director of Gunnery Exercises and Engineering Performances.

The response on the part of personnel and material, of men and guns, to this intensive system was quick and powerful. Accuracy of aim, rapidity of fire, and increase of hits at unprecedented range returned to the fleet. Admiral Mayo was able to report last July that—

> It is believed that the dissemination of gunnery knowledge in the fleet during the past year has been greater than at any period in recent years.

And he added:

> There now exists in the fleet excellent gunnery spirit and a thorough interest in battle efficiency.

Admiral Fletcher declared last July that—

> Criticism * * * implying that there has been a deterioration in efficiency during the last three or four years * * * is not justified by the records of target practice on file in the department or upon reports from the fleet. The introduction of salvo firing, independent fire control of turrets, double-barrel firing, and other requirements call for greater training and greater skill in all the details of material and of fire control, and these new demands have been met without any falling in efficiency * * *. For a time previous to the summer of 1914 some of our battleships were unavoidably retained on the coast of Mexico, owing to our lack of cruisers for that service. It was stated, as a criticism, that owing to this fact our battleship force was not kept together for fleet maneuvers, and as a consequence there was a falling off in target practice. This is not borne out by the facts. Our daily training and drilling for target practice at dotter practice, check telescope, or subcaliber was kept up on all ships, whether in Mexico or with the fleet.

It may be stated therefore that a better systematized and more searching analysis by boards of officers of the performance of ships during the training period preliminary to gun practice, as well as during the gun practice, has resulted in the elimination of faulty methods, standardization of good methods, and a general increase in knowledge of principles and methods underlying successful gunnery. During the year the fleet has carried out all the various forms of gunnery exercises prescribed by the department. The advance in battle efficiency has been maintained and the new orders covering fleet activities for the coming year have been approved. The problems involved make greater demand upon individual and fleet training, and all tend toward further increased efficiency. The satisfactory progress of last year is being maintained and more time is being given in the fleet to gunnery training than in previous years, without sacrificing the time necessary for other important exercises. Firing at extreme ranges has been carried out successfully, and with

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the greater experience with improved instruments for determining and controlling the ranges, supplemented by improved fire-control installations, more satisfactory results should obtain the coming year. Various experimental firings have been carried out, all of which resulted in a wider knowledge of results to be expected in firing under modern conditions. The battleship and destroyer forces have just completed the short-range battle practice for the year 1916–17, and substantial progress has been made over that reported last year. The submarine force shows an equally satisfactory advance in torpedo work.

I am furnishing to the Committee on Naval Affairs a confidential report showing the remarkable record made and the steady improvement of the past year.

Aircraft for Sea Service.

The necessity for aircraft as an important arm of naval service is appreciated now more than before their value was demonstrated in the European war. The development of aircraft in the Navy has not progressed as rapidly as its usefulness demands. There is no arm of the service which is now calling for more thought, for it is recognized that what has been done is but an earnest of the greater things which must be done to strengthen the flying corps and make it as effective as the Navy is afloat. Efforts are making to secure the fullest cooperation with the Army Aviation Corps and the civilian efforts to improve the service. The aviation base at Pensacola, which site was selected by a board of able naval officers, is rapidly being equipped. Cruisers are being fitted with catapults. Suitable craft are being obtained as rapidly as American manufacturers can supply them.

The greatest difficulty in connection with naval aeronautics is due to the fact that practically every American aeroplane manufacturer is primarily a builder of land machines, and has not considered the special problems of naval aeroplanes. A land aeroplane can not be modified into a successful naval aeroplane for many very apparent reasons, yet manufacturers continue to endeavor to build naval aeroplanes by such methods. Furthermore, most of the manufacturers have little first-hand knowledge of sea conditions, and their floats and structure do not stand up under such conditions. Until they learn exactly what is required there will necessarily be a great many failures and rejections, and hence the progress depends almost directly on the education of manufacturers in this work. There are reasons to believe, now that the last session of Congress has appropriated enough money to justify investment, that manufacturers will construct aircraft for naval purposes. Great trouble has been and is still experienced in obtaining suitable aeroplanes and engines.

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There are now 17 aeroplanes in active use by the Navy. There are on order 60 machines of various types which have not yet been completed and accepted. The industry is still so new that standardization of manufacturing method has not yet been reached, and many delays and rejections are inevitable. Some companies have made progress, however, and the situation is improving. A large twin-engine aeroplane has been designed and built at the Washington Navy Yard and is undergoing tests. It is proposed both to buy from private manufacturers and to construct at Washington suitable aircraft. Efforts have been made to procure such craft from European nations where the exigencies of war have stimulated talent and manufacture. The war has prevented this in large measure. One Paul Schmidt machine, equipped with new type of Renault engine, has been shipped from France. Two Farman aeroplanes have been ordered from that country. Two Green engines have been recently obtained from England. Great difficulty, however, is experienced in obtaining aeronautic supplies from Europe at present. The construction of rigid airships will soon be commenced; plans are being drawn for nonrigid vidette type airships. Other types have been purchased or ordered and will be supplied as rapidly as possible. The appropriation of $3,500,000 by the first session of the Sixty-fourth Congress has enabled the department to begin on a larger scale. Increased appropriations are necessary to make the air-craft arm of the Navy what it must be to render the service which experience has shown these ships of the skies are capable of rendering in time of war. Surprises in war ended with the coming of the scouts of the air. The European war has taught us many things in connection with aeronautics. Foremost among these lessons is the necessity for a large trained personnel. The flying services in those countries, though in most cases small, were well trained and fairly well equipped at the outbreak of the war, but the sudden expansion which became necessary almost completely broke down the organization because there were not enough trained officers and men to man the machines in the field and afloat, and at the same time conduct the administration of the services and the training of new personnel on shore.

The first session of the Sixty-fourth Congress authorized the admission of civilians into the Naval Flying Corps. Some of the most expert aviators in Europe are young men who have the requisite quality of skill and daring needed as scouts of the air. They were neither navy nor army officers. This country is now to utilize men of this gift in its Naval Flying Corps, in addition to the classes of educated and trained officers who go into this branch of the service. This training is now being extended to officers and men of the Naval Militia and the Coast Guard. There are at present at the Pensacola

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Aviation Station 9 officers qualified as naval aviators and 16 officers under instruction. A new class consisting of 12 naval officers, 80 men; 4 marine officers and 16 men; 4 Naval Militia officers and 16 men; and 2 Coast Guard officers and 8 men is now about to be sent to the station. There are now also two marine officers receiving instruction in land-machine flying at the Army school at San Diego, Cal. Qualified officers for aeronautic work at sea from ships and for inspection duty on shore are continually required, and this demand is continually increasing. The supply of officers to be trained must be maintained and the rate of supply must be increased to meet the increasing demand.

A joint Army and Navy board will shortly convene to decide upon the division of responsibility between these services for the air forces of the Nation. Immediately upon the settlement of this vital question, the subject of coastal air stations for patrol and defense will be taken up. Plans have already been drawn up by the Navy, but a complete understanding between the two services is being sought before steps can be taken to put such plans into effect. The Advisory Committee for Aeronautics, authorized under and appropriated for in the Naval bill, is working in hearty cooperation with the aviation corps of both the Army and Navy, and it is hoped and believed this spirit of cooperation and the results of the study of this scientific body and the Naval Consulting Board will aid in a more rapidly increasing and efficient aviation branch of the service.

NAVAL RADIO SERVICE:

The name of this service will be changed to naval communication service in the near future, it having taken over the handling of all telegraph, telephone, and cable communications and generally all dispatch work of the Naval Service outside the fleet, in addition to the work of the radio stations. The Government and commercial needs have been efficiently served. As an illustration of the growth of the Radio Service in the past few years it may be noted that during the period from December 13, 1912, to December 31, 1913, there were handled a total of 12,854 commercial messages, while during the past fiscal year 97,084 commercial messages were handled. The number of official messages had correspondingly increased, the number for the fiscal year being 628,997.

The censorship of commercial radio stations, to carry out the proclamation of the President dated August 5, 1914, and his Executive order of September 5, 1914, relating to radio, has substantially the same status as at the time of the last annual report. The regulations have been enforced so as to inflict the minimum amount of inconvenience on the public consistent with the neutrality requirements. The department has not found it practicable or necessary to station officers in each commercial station. The censorship regu-

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lations are very clear and explicit, and it is gratifying to report that owners of commercial stations have during this fiscal year generally cooperated loyally with the Government in maintaining the neutrality of the United States.

The censorship regulations are based entirely on the President's neutrality proclamation, and should be covered by legislation in order that proper penalties may be provided for such use of radio stations as might at any time imperil the peace of the United States. The President should be given definite power to issue regulations governing the operation of all radio apparatus of whatever character under the jurisdiction of the United States, in order that necessary steps might be taken in delicate situations which might involve us in hostilities in advance of such hostilities. Furthermore, it is becoming increasingly evident that no censorship of radio stations can be absolutely effective outside of complete Government operation and control.

The control of the fleet requires a complete and effective naval radio system on our coasts. This we now have, but with the natural rapid increase of radio installations problems of mutual interference between the Government and commercial stations, ship and shore, are increasing. Every effort is being made to keep naval ships and stations supplied with the very latest apparatus, but the problem of interference is far from being solved, and the work of both Government and commercial stations is restricted, especially in congested areas. The department sees no effective means of handling this subject of interference except by the operation of all radio stations on the coast under one control, and it is becoming increasingly evident that the Government must in the end follow the lead of almost all other Governments and obtain control of all coast radio stations and operate them, in conjunction with naval stations, for commercial work in times of peace.

The interference between high-power stations is also looming up as a great problem of the future, and special consideration should be given this subject while the number of such stations not operated by the Government is small.

The Tuckerton and Sayville stations have been successfully operated under naval control during the year with great profit to the owners.

There are 51 radio stations of the service in operation ashore and on light vessels, 2 of which are high-power stations, 10 of medium power, and the rest of lower power for communication with ships. In addition, a new medium-power station has been completed and will soon be put in service at Point Isabel, Tex. This station will be of great service to the merchant marine in that section, as well as to the Government in facilitating communication with vessels in Mexi-

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can waters. Within the next year it is expected that at least two new high-power stations will be completed, namely, at San Diego and at Pearl Harbor. Work is progressing satisfactorily on the Cavite high-power station, also on medium high-power stations at Puget Sound and at Cordova, Alaska. Estimates have been submitted for another high-power station on the island of Porto Rico, primarily for use in naval operations.

Marked improvement has been made in the radio equipment of ships and of the more important shore stations, enabling communication to be maintained over greater distances and securing an unfailing means of cross-continent communication at all times. Distant control stations have also been established at the principal stations and contribute greatly to the handling of the ever increasing volume of naval and commercial business.

Experiments on a practical scale have been continued with direction-finding apparatus. The results have been very gratifying, and it is believed that, when perfected in all its details, the instrument will be of great service as an aid to navigation.

COMMUNICATION BY WIRELESS TELEPHONE.

The Naval Radio Service was mobilized for tests on May 6, 7, and 8, 1916, when, in conjunction with the American Telephone & Telegraph Co., the Navy Department was connected by telephone and telegraph with all navy yards and radio stations in the United States. The result of such tests was so satisfactory that the department proposes to arrange for continuous direct long-distance service by telephone and telegraph circuits between the department and the principal navy yards on the Atlantic coast.

Shortly before 4 p. m. of Saturday, May 6, there congregated in the office of the Secretary of the Navy a number of officers of the various departments, in addition to representatives and officials of the American Telephone & Telegraph Co., to witness the opening of the mobilization. After opening remarks by the vice president of the American Telephone & Telegraph Co., to which the Secretary replied, and a short address by the chief engineer of the American Telephone & Telegraph Co., communication was at once established by wireless telephone between the Secretary and the captain of the battleship *New Hampshire*, then at anchor off Fortress Monroe. The Secretary then gave orders to the ship for the next day's movements, this being the first occasion that a ship of the Navy was ever operated direct from the department by wireless telephone. Many receivers were fitted so that the guests present could hear the conversation. Thus was brought to reality the prediction made to the Secretary some time previously that the time would come when he could sit at his office desk and converse with the captain of a ship at sea. This demonstration was fol-

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lowed by talking to various naval stations, widely separated, by long-distance land line. The circuit used between the Secretary and the *New Hampshire*, at anchor off Hampton Roads, consisted of land-line communication to Radio, Va., and wireless from there to the *New Hampshire*. The return circuit was by wireless to the Norfolk naval radio station and thence by land line to Washington.

On the following day, May 7, communication by wireless telephone was again carried out with the *New Hampshire* cruising between Hampton Roads and the southern drill grounds, and the communication was extended to include Mare Island. The commandant in his office at Mare Island conversed for some time with the captain of the *New Hampshire*. This was done by land line from Mare Island to Radio, Va., and thence by wireless telephone to the *New Hampshire;* returning, wireless telephone from the *New Hampshire* to Norfolk naval radio station, and thence by land line to Mare Island via the department. This wonderful achievement is but an earnest of further wonders which the future may develop in this art.

THE NAVAL OBSERVATORY.

With increased and increasing speed of our warships, increased fighting ranges, and the continuing development of submarines and aircraft has come the necessity for new and more rapid methods of navigation and plotting, which the Naval Observatory has met by encouraging suggestions, aiding in the development of methods and instruments, making trial of all such as give promise of usefulness and furnishing to the service those that have proved of value.

The usefulness to navigation and to the country in general of the daily time service has been added to by the installation of two up-to-date transmitting clocks and arrangements for checking the actual emission of the radio time signals, which are now received throughout the country east of the Rocky Mountains and the contiguous oceans for several thousand miles. The time for the country west of the Rocky Mountains and for vessels navigating the north and east Pacific Ocean is sent out from the navy chronometer and time station at the Mare Island Navy Yard.

The routine astronomical work of the observatory for keeping track of the heavenly bodies has been kept up, a photographic zenith tube telescope for determining the variation of latitude added to the plant, and the photographic work extended. One volume of observations and an appendix, "Determination of the Difference of Longitude between Washington and Paris, 1913–14," have been published. The 1916 Nautical Almanac contains improvements and additions over previous issues, and tables have been gotten out to add the times of sunrise and sunset and moonrise and moonset in future editions. For the ensuing year the Naval Observatory will continue

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its routine work of furnishing time, Nautical Almanacs, and navigational instruments; and it is hoped it will be allowed a small appropriation for preparing and fitting out a party to observe the total eclipse of the sun, of June 8, 1918, the path of which will cross the United States.

The repair work to nautical instruments now being done in the instrument repair shop of the observatory has proved so much more economical and satisfactory than the old method of contract repairs that the shop has continually expanded with the expansion of the Navy, and the addition of new forms of navigation instruments for submarines and aircraft until the addition to the shop building of two upper stories is urgently needed to provide economical facilities for the work.

OIL CONSERVATION A NATIONAL NECESSITY:

When the three-year program already authorized by Congress is completed the Navy will require 6,721,000 barrels of fuel oil annually during peace and about three times that amount in the event of war. All new ships are oil burners, and the securing of an adequate supply of oil for the future is a matter of prime importance to the Navy. The superiority of oil-burning ships is so great that the Navy Department desired to build oil-burning battleships, but felt that a deterrent, affecting the use of oil fuel, was the fear of a failure of the supply.

In 1913 the cost of fuel oil was so great and the number of bidders on the Navy's oil requirements so few that in March of that year, before definitely entering upon the policy of constructing only oil burners, the Navy Department wrote to the Department of the Interior asking for information regarding the probable fuel-oil situation 20 years hence and the probability of being able to secure an adequate supply for the prospective oil-burning fleet. The Department of the Interior replied: "Relief to the Navy from increasing commercial prices can probably be secured only by development of its own reserves. * * * It is believed that the Department of the Navy may rely upon the reserves already existing for a supply of fuel oil for a period greater than the life of any battleship to be constructed within the next decade."

Prior to September 27, 1909, any citizen of the United States might enter upon public lands and prospect for oil under the placer-mining laws. He might claim 20 acres, or an association of eight individuals might claim 160 acres, and as long as he prosecuted work looking to a discovery of oil his claim was valid against any other subsequent claimant, but he secured no title as against the United States until he had made a discovery of oil or gas.

The inapplicability of the placer-mining laws, the fact that much oil land was being claimed illegally by homesteaders, scrippers, and

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others, and the fact that the needs of the Navy for fuel oil were realized, caused the President, through the Interior Department (acting on the recommendation of the Geological Survey, and the Interior Department), to withdraw from entry on September 27, 1909, large areas of public land classified as oil land. The order of withdrawal said:

> All locations or claims existing and valid on this date may proceed to entry in the usual manner after field investigation and examination.

It is fair to assume that the representatives of the Government who drew up and issued this order knew the legal meaning of the terms employed therein. Under the mining laws a valid location can not exist prior to discovery, but a valid location gives the locator a vested right, so that the President could not have disturbed the owner of a valid location. Therefore the language used in the order of the withdrawal must have been for the purpose of assuring the owners of valid locations under the mineral public-land laws, and the owners of valid claims under the nonmineral public-land laws, that there would be no attempt to disturb them in their possession, and that their location and claims could proceed to patent.

When this withdrawal order was issued, there were many claimants to oil-bearing public lands in all stages of initiating and perfecting their claims, and many others who were planning to occupy the public domain and prospect for oil under the placer-mining laws, and nearly all of the withdrawn land was covered by numerous paper locations of no value. The Government did not at that time have notice of all the claims that were in existence and valid, because the placer-mining law did not require the claimant to give such notice to the Federal Government until he applied for a patent, which could not be done until a discovery was made. In fact, even after a discovery was made, no notice was required and the locator might legally extract all the oil present without filing an application for patent. Soon after this withdrawal was made two points were raised by claimants of public oil lands within the withdrawn area. First, that many oil men had spent much money and were about to effect a discovery, and that if the withdrawal order stood as issued they would suffer great financial loss through no fault of their own. Second, that able lawyers consulted by them advised that, in their opinions, the President had not the authority to issue such an order.

The first point was settled in favor of the oil claimants by Congress in passing the Pickett Act of June 25, 1910, containing the following provision which followed the language of a court decision cited by the oil men as defining the exact measure of relief desired by them:

> *Provided*, That the rights of any person who, at the date of any order of withdrawal heretofore or hereafter made, is a bona fide occupant or claimant of oil

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or gas-bearing lands, and who, at such date, is in diligent prosecution of work leading to discovery of oil or gas, shall not be affected or impaired by such order, so long as such occupant or claimant shall continue in diligent prosecution of said work.

The second point was settled by the Supreme Court, in its decision in the Mid West case, in February, 1915, when it was held that the withdrawal order was valid.

The Navy Department requested the cooperation of the Department of the Interior to secure for the Navy a definite reservation of oil-bearing public lands, but in each instance the Department of the Interior replied that pending other and adverse action by the Executive or legislation by Congress the existing withdrawals are as effective in preventing the initiation of private claims on public oil lands as any more specific reservation. In September, 1912, the President, under the authority of an act of Congress (36 Stat., 847), set aside from the already withdrawn area in California a definite area to be known as Naval Petroleum Reserve No. 1. In December, 1912, the second reserve No. 2 in California, and in April, 1915, No. 3 in Wyoming were similarly created by the President.

The orders creating these naval petroleum reserves stated that the area "shall be held for the exclusive use or benefit of the United States Navy," but the Navy has received no benefit from these reserves and the Navy Department has been unable to take actual physical possession of the naval petroleum reserves, except as to those parts upon which no oil has been discovered, no drilling in progress, and no adverse claims appear, because litigation is pending in the Land Office over all these public lands which are claimed by individuals. Because of this litigation the Navy Department has lacked the authority to protect its interests in these reserves. It has not been idle, for it has acted in concert with other departments to press the investigations and suits and take appropriate action to protect the Navy's interests. The activity of the department in this matter is further shown by the printed records of hearings on proposed legislation affecting the reserves and by its action in detailing a naval officer to special duty in connection with studying, investigating, and protecting these lands, and the using of special appropriations in concert with the Interior Department and the Department of Justice to hasten the disposition of the cases affecting title to these lands.

Since the withdrawal of September, 1909, scores of bills have been introduced in Congress bearing upon the withdrawal and the administration and disposition of the public lands containing oil and gas deposits, but few of them have recognized the Navy's rights and none of them have offered adequate protection to the deposits of oil which have been set aside for the exclusive use and benefit of the Navy.

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The status of the naval petroleum reserves is now complicated by the following conditions:

1. The existence of numerous claimants to these lands whose claims are asserted notwithstanding the provision of the Pickett Act, which were initiated in defiance of the withdrawal order or are more or less fraudulent.

2. The suits in progress, about to be instituted, or contemplated.

3. The proposed legislative action which in the form of the "general leasing bill" (H. R. 406) passed the House of Representatives and is to be considered by the Senate when it meets.

This "general leasing bill" passed the House of Representatives but was so amended by the Senate Committee on the Public Lands as to omit all reference to coal lands and, as presented to the Senate, was virtually an act nullifying the decision of the Supreme Court in the Mid-West case, abolishing the naval petroleum reserves, dismissing all suits instituted, and leasing or patenting outright to the claimants the lands claimed. This bill was so amended in spite of the fact that, first, the Navy Department fully presented its claims; second, that the Department of Justice pointed out that few of the beneficiaries possessed even equitable claims, that many were fraudulent, and that the chief beneficiaries were very large corporations and not the poor, hard-working prospector pictured by the oil-land claimants; and, third, that individuals pointed out that many of the claimants had already recovered in the value of the oil extracted far more money than they had expended, and further that some of them had willfully and irreparably damaged the oil-bearing formations. It is to be hoped the litigation will be soon terminated and that Congress will turn a deaf ear to all pleas to give relief to those who have no legal claim to the Naval reserve lands.

Among the many advantages possessed by an oil-burning naval vessel over a coal-burning vessel may be mentioned the following:

(*a*) Large excess of speed.

(*b*) Absolute control over the emission of smoke so that advantage may be taken of the ability to utilize smoke screens.

(*c*) Greater radius of action.

(*d*) Reduction in fireroom force of about 55 per cent.

(*e*) Increased ability to refuel at sea, thereby increasing the effectiveness of the fleet by at least 25 per cent, as that percentage of coal burners would be absent from their station for refueling.

(*f*) Ability to maintain maximum speed for as long as the fuel lasts, because fires do not foul and fireroom force does not become exhausted.

(*g*) Flexibility in regard to increase and decrease of speed without loss of fuel, water, and time.

(*h*) Greater safety of the vessel from submarine attack because of more permissible subdivisions of ship.

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As illustrating the above advantages it may be stated that the scouts, destroyers, and battle cruisers authorized by the last naval appropriation act could not be built if coal were used as fuel.

In view of the great advantages of oil fuel enumerated above and in view of the fact that this country produces annually two-thirds of the world's supply of petroleum, and upon assurances of the Department of the Interior as to the oil contents of the naval petroleum reserves, in 1913 the Navy definitely adopted the policy of building oil-burning vessels only.

It was the intention to hold these areas which could be wisely conserved in reserve and not utilize their oil content until the shortage of domestic production or the increased price of fuel oil rendered it advisable. These reserves were designed to serve as an insurance against the possibility of having a large fleet of exclusively oil-burning ships with no oil available.

Now, when the Navy has a large fleet of exclusively oil-burning vessels in commission, building, and authorized, it is confronted with the above-noted adverse conditions affecting the naval petroleum reserves, and the further fact that practically all students of the petroleum resources of the United States are predicting an early decline in the yield of petroleum, and some of the best-posted experts state that at the present rate of consumption of approximately 265,000,000 barrels per year the estimated supply in the ground would last only approximately 22 years, and that the price of oil will probably reach $5 per barrel.

Therefore it is of vital importance that the Navy protect every barrel of oil within these reserves in order that at least an adequate supply shall be available within the continental limits of the United States in the event of war. The Navy Department has had representatives in the field studying the conditions affecting naval petroleum reserves Nos. 1 and 2 and has assisted the Department of Justice in securing data for suits now in progress; but I believe that Congress should take a long step greatly needed for national defense by preserving the Navy's rights to these lands, so that the Navy can be sure that its efforts to protect resources which are of such vital importance to the safety of the Nation will not be jeopardized by claimants who demand relief by Congress because they know their claims can not stand the test of judicial inquiry and determination.

The conditions may be succinctly stated as follows:

An oil-burning naval vessel is incomparably superior to a coal-burning vessel of the same class.

If this Republic is to maintain a Navy, it is worse than useless to have that Navy made up of inferior vessels.

We have adopted the policy of building exclusively oil-burning vessels, relying for the future supply of fuel oil upon naval petroleum reserves created under the authority of an act of Congress.

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This future supply of fuel oil for the fleet is threatened by legislation designed to benefit certain large corporations, other companies, and individuals possessing no legal title to the lands claimed.

Shall such legislation be enacted, thereby forcing the Navy to decide whether it shall continue to build oil-burning vessels, which will depend for their usefulness to the country in time of danger upon an uncertain commercial supply of fuel, or build coal-burning vessels which will be admittedly inferior to those of a nation that can control a supply of oil? or

Shall the national good be placed above private interests without legal rights? The legal rights of claimants can be recognized and cared for without prejudice to the rights of the Navy and the need of the country for an adequate available supply of fuel oil for the fleet. If private parties have any equities that should be preserved, the Navy Department would not stand in the way of adjustment of such rights. But to legislate to give title to oil lands set apart as a naval reserve might jeopardize national defense. Against legislation which would defeat the Naval Reserve orders, affirmed by the Supreme Court, the Navy Department has protested and will continue to protest. Failure to oppose any steps to deprive the Navy of these oil reserves would be to neglect the highest interest of the Navy. If oil can not be obtained at reasonable figures now and in future years, the Navy may be compelled to end the construction of oil-burning ships, losing the manifold advantages which make them superior to those ships which burn coal. Foreign nations, looking to this country and to Mexico for their oil supply, are constructing ships which burn oil. It would be a national calamity for this country to fail to preserve the oil reserves already set aside and to find and set aside other oil-bearing reserves. Present local interests in producing oil ought not to be permitted to stand in the way of this conservation for preparedness, particularly in cases where those asking relief have no legal claim to the lands for which they are seeking titles. National preparedness in an oil reserve is essential to the highest efficiency of the greater Navy.

AUTOMATIC INCREASE IN LINE AND STAFF:

The shortage of officers in both the line and the staff of the Navy and in the Marine Corps, the effects of which had already been felt, was accentuated by the greatly enlarged building program adopted by Congress. Recognizing this need for additional officers, legislation was included in the naval bill that will permit the commissioned personnel to be automatically increased from time to time to meet the demands of the growing Navy. The total number of commissioned officers of the line was fixed at 4 per cent of the authorized enlisted personnel, and the number in each grade is a given percentage of the total number of line officers that may be in the service at any

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time. Under this arrangement, as there are increases in numbers there are corresponding increases in each grade; and the "humps" which have been such a source of annoyance and discontent in the past will practically be done away with.

The numbers of the Pay, Construction, and Civil Engineer Corps are based on a percentage of the total authorized number of line officers, so that these corps will also expand as the size of the Navy increases. These percentages are:

For the Pay Corps	12
For the Construction Corps	5
For the Corps of Civil Engineers	2

The strength of the Medical Corps, which serves not only the officers but the enlisted men of the Navy and of the Marine Corps, is fixed at 65/100 of 1 per cent of the total strength, commissioned and enlisted, of both branches of the service.

In the grades in the Staff Corps of the rank of commander and above, the numbers in each grade are a certain percentage of the total number in each corps; but, up to and including the rank of lieutenant commander, officers of the Staff Corps are promoted with their running mates in the line. This insures that all commissioned officers will reach the grade of lieutenant commander after having served about the same length of time. The need for the Corps of Professors of Mathematics, which was originally established for the purpose of instructing the midshipmen at the Naval Academy, having ceased, provision is made that no further appointments shall be made to this corps and that the corps shall cease to exist upon the death, resignation, or dismissal of the officers now carried in that corps on the active and retired lists of the Navy.

Commissioned warrant officers who have creditable records are given the pay and allowances of lieutenant (junior grade) after 6 years from date of commission and the pay and allowances of a lieutenant after 12 years from date of commission.

Promotions in the line to the grades of commander, captain, and rear admiral will, as a result of this legislation, be made by selection instead of by seniority as has been the practice in the past. The selection will be made from each lower grade upon the recommendation of a board of 9 rear admirals on the active list of the Navy. This board will convene during the month of December of each year and will recommend to the Secretary of the Navy for promotion a number of officers in each grade equal to the number of vacancies to be filled in the next higher grade during the following calendar year. It is also required that any officer recommended for promotion shall have received the recommendation of not less than six members of the board. The approval or disapproval of the report of the board rests with the President.

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Officers selected for promotion are still required to pass the examinations prescribed by law for officers promoted by seniority and, in case of failure to pass the professional examination, an officer is thereafter ineligible for selection and promotion. On and after June 30, 1920, an age-in-grade limit is placed upon promotions from the grades of captain, commander, and lieutenant commander, the limit being fixed at 56 years for the grade of captain, 50 years for the grade of commander, and 45 years for the grade of lieutenant commander. Officers who become ineligible for promotion on account of age will be placed on the retired list, with pay at the rate of 2½ per cent of their shore-duty pay for each year of service. The age limit for retirement of all officers of the Navy was fixed at 64 years instead of 62 years, as heretofore, and is now the same as that prescribed for the Army and Marine Corps.

In order to meet the increasing demand for additional officers for engineering duty, legislation was also enacted which authorized the appointment annually in the line of the Navy for a period of 10 years, of 30 acting ensigns for the performance of engineering duties only. The persons so appointed are required to have a degree of mechanical or electrical engineer from colleges or universities of a high standing or be graduates of approved technical schools; and the appointments will not be made until after competitive examination. These acting ensigns will serve under probationary appointments for a period of three years, and after the completion of this period and the passing of a satisfactory examination may be commissioned in the grade of lieutenant (junior grade) in the line of the Navy, but will be required to perform engineering duties only, although they will be eligible for advancement to the higher grades. The practical working out of the new personnel legislation is given in Appendix H.

INCREASE IN THE NAVAL ACADEMY.

As vacancies in the line and in the Construction and Civil Engineer Corps can only be filled by graduates of the Naval Academy, early in the year Congress was asked to provide for an increase in the number of midshipmen, so that the vacancies could be filled at the earliest possible time. In February a law was passed authorizing the appointment of one additional midshipman for each Senator and Member of Congress; so that the number at the Naval Academy will be increased by approximately 50 per cent. There were 900 midshipmen at the Naval Academy in 1916 and it is estimated that there will be 1,200 this year and probably 1,500 next year. The effect of the increased numbers will be felt with the graduation of the classes of 1920 and 1921.

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RETIRED OFFICERS.

Due also to this very great shortage of officers at the present time the naval act contained provision whereby retired officers assigned to active duty are entitled to the active pay of their rank or grade, not exceeding that of lieutenant commander. Prior to the passage of the act the limit of emolument which could be received by a retired officer on active duty was pay and allowances of a lieutenant. The above change, it is believed, will induce many officers now on the retired list to apply for active duty, thus relieving the present shortage of officers to some extent.

THE NAVAL MILITIA.

The Naval Militia has made steady progress during the past year. It has increased from a total of 606 to 636 officers and from 7,706 enlisted men to 9,170 enlisted men. Nine battleships and cruisers in reserve were detailed to take militiamen for a two weeks' cruise, and the value of the Naval Militia as an asset to the Navy is very clearly indicated in the reports of the commanding officers of these ships. This branch of the service is the source from which a large part of the necessary recruits for expansion in time of emergency or threatened war must be obtained. The personnel of the Naval Militia is composed of volunteers who devote a large part of their leisure to fitting themselves for use to their country in time of need. Naturally men of such impulses are zealous, intelligent, and patriotic, and the department feels that in expressing its appreciation of their service so patriotically and unselfishly rendered it voices the sentiment of the country at large. A word of gratitude is due to those business enterprises, large and small, the owners of which have been liberal in granting leave to their employees enlisted in this service in order to take this training.

A drawback to the training of the Naval Militia in the past has been a shortage of officers available for the duties of inspection and instruction. This is gradually being overcome by utilizing ships in reserve and retired officers of the Navy for such training and inspection. There are at present nine ships in reserve detailed for duty in connection with training the Naval Militia, and this number will be increased as more vessels become available. Thirteen officers are detailed as inspectors and instructors with no other duties; in addition there are 42 officers who have additional duty with the Naval Militia.

NAVAL TRAINING CRUISE FOR CIVILIANS.

What has been described as "an ocean Plattsburg" was the naval training cruise for civilians which began August 15 and lasted until September 9. The object of this cruise was to secure men with an

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instinct for the sea to act as reserves in time of war or national emergency by giving them a course of training on warships, under naval officers and naval discipline, thus affording civilians, especially those who were brought up on the water, an opportunity to gain an experience calculated to fit them for this service in time of need and to give them a taste of what the Navy requirements of the country would be in a time like that. For this duty there were detailed from the ships of the reserve force nine vessels on the Atlantic coast and two on the Pacific coast, the embarkation being from the following ports: Portland, Me.; Boston, Mass.; Newport, R. I.; New York, N. Y.; Philadelphia, Pa.; Baltimore, Md.; Norfolk, Va.; Charleston, S. C.; Seattle, Wash.; Astoria, Oreg.; and San Francisco, San Pedro, and San Diego, Cal. From the Atlantic coast there were embarked 1,831 men and from the Pacific coast 97 men.

It was the original intention to confine this first cruise to the Atlantic coast, as it was more or less of an experiment, but after numerous requests had been received the department authorized a similar cruise for the Pacific coast, but too late to afford it the required publicity, which accounts, in part, for the wide difference in the numbers which enrolled on the two coasts.

For the gratifying success in securing enrollments great credit must be given to civilian committees organized in several of the large cities for the purpose of giving publicity to the cruise.

The ships on the Atlantic coast mobilized at Fort Pond Bay on August 15, and after participating in the department's strategic maneuvers August 20–27, proceeded to Hampton Roads for drills ashore and liberty. Here a review of the civilian battalions was held at Fortress Monroe. Target practice was held at Tangier Sound. During the cruise these volunteer recruits were given setting-up exercises, infantry drill, boat drill, emergency drills, gun drills, etc., and instruction in seamanship, navigation, steam engineering, electricity, radio work, and watch standing.

Cooperating with the vessels engaged in this cruise were a number of motor boats entered by residents of the different naval districts represented, with the idea in view that these small craft would be quite useful as auxiliaries in time of war. No boat was permitted to participate in the last week of the cruise unless it had been previously inspected by the board, and 54 boats reported for mobilization—9 at Cape May, 18 at Boston, 12 at Newport, and 15 at New York. These boats were exercised in maneuvers, signaling, searching for submarines, guarding battleships against submarine and destroyer attacks, and given instruction in the defense of their respective naval districts. The organization of these boats must conform to the organization of the naval district, and for the purpose of inspection and classification a permanent board of two officers has been appointed in

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certain naval districts under the direct supervision of the commandant of these districts and with additional duties under the Board of Inspection and Survey.

The recruits taking part in this cruise represent the highest type of professional and business young men of the country, and almost without exception they left the cruise imbued with the fine spirit of the American Navy, with a new realization of its value as that arm of the service which would be first to strike a blow against aggression in the defense of the country, and, while the department realizes and no doubt they themselves do, that the experience gained in this short period will not fully qualify them for service with the Navy, it has given them, nevertheless, a primary naval course, and it is believed and hoped that it will whet their patriotism to such an edge that they will not fail to take advantage of future cruises and qualify for the volunteer naval reserve. From the enthusiasm evinced by the civilians who participated in this cruise, the reports emanating from them, and the press comments since the completion of the cruise, the department feels assured that in future cruises there will be no difficulty in securing as many volunteers as can be accommodated. Just prior to the completion of the cruise, representatives of the civilians called a meeting for the purpose of effecting a national organization, and it was decided to hold an organization meeting in New York in the near future.

NATIONAL NAVAL VOLUNTEERS.

The new naval act provides for a force to be at the disposition of the President for use, in addition to the Regular Navy, in any emergency and in actual war. The National Naval Volunteers will be a force of volunteers, qualified physically and professionally as the department may prescribe, immediately available for expansion of the Navy in time of emergency or threatened war. Congress provided liberal retainer pay for the National Naval Volunteers and the department has every reason to believe that within a reasonable time the entire Naval Militia will volunteer and be incorporated in the National Naval Volunteers. The continued generous support of the Naval Militia and the National Naval Volunteers by the Government is amply justified by the attendant results in the increasing efficiency of the Naval Militia.

NAVAL RESERVE FORCE.

Another important and progressive feature of the naval act was the creation of the Naval Reserve Force. A well-trained, efficient, and large reserve for the Navy has for many years been an urgent necessity. It remained for the Sixty-fourth Congress to enact legislation that will in the shortest possible time provide the Navy with

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this crying need—a proper and adequate reserve. The legislation enacted provides for a Naval Reserve Force which will embrace all former officers and men of the Navy who are now in civil life; officers and men of the merchant marine, including those on the ships of the merchant marine that will be taken over by the Navy in time of war or emergency; those civilians who may be capable of performing useful service to the Navy in connection with the defense of the coast, such as service on or with coast-defense vessels, mining vessels, patrol vessels, or as radio operators and aviators. Provision is made for a liberal retainer pay for all classes of reserves. An important and valuable provision is to the effect that enlisted men of the Navy after 16 or 20 years of service may transfer from the active list to the reserve, and these are given pay to retain their services until they are no longer needed by the Government.

It has been estimated that there are now in the country 20,000 officers and men who have been trained in the Navy and have gone into civil life. It is expected that most of these trained and efficient officers and men will volunteer for enrollment in the Naval Reserve Force. Within a few years the Naval Reserve Force should number at least 30,000 officers and men.

PAY OF ALL NAVAL RESERVES.

In order to make more attractive service in the various Naval Reserves the pay has been fixed as follows:

In the Fleet Naval Reserve, officers are to receive two months' base pay of their rank. Men of 4, 8, and 12 years' service will receive, respectively, $50, $72, and $100 per year. This pay is increased 25 per cent for each enrollment. The transfer class of 16 and 20 year men will in general receive between $40 and $60 per month.

In the Naval Auxiliary Reserve, officers will receive one month's base pay of their rank. Men will receive two months' base pay of their rating. This pay is increased 25 per cent for each enrollment.

In all other classes except the Volunteer Naval Reserve, officers and men will receive two months' base pay of their rank or rating.

In the Volunteer Naval Reserve, members of this class must serve in one of the other classes of the Naval Reserve, the only distinction being that they will receive no retainer pay. Members of all classes will receive full pay of their rank or rating when on active service; this is in addition to their retainer pay.

INCREASE IN THE MARINE CORPS.

The naval appropriation bill for the fiscal year ending June 30, 1917, contained provisos increasing the Marine Corps by 255 officers and 5,034 enlisted men. The establishment of a large Marine Corps post on each coast as training stations for its expeditionary forces

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has now become necessary. San Diego has been selected as the site for the west coast post. Inasmuch as the east coast navy yards are being developed industrially to their utmost capacity, the east coast post must be located at some place other than a navy yard.

THE ORGANIZATION OF THE MARINE CORPS.

Extensive legislation was enacted concerning the personnel of the Marine Corps, placing it on a percentage basis similar to that above described in the case of the Navy, embracing a large addition of second lieutenants and many promotions to officers already in the corps. The legislation contains a partial reorganization of the corps and provides for the eventual amalgamation of the line and staff. The legislation authorizes the appointment of five officers with the rank of brigadier general from among the colonels of the Marine Corps, and provides the rank and pay of brigadier general for the senior member of the quartermaster, paymaster, and adjutant and inspector's departments. The provisions contained in the act which establish warrant grades in the line and staff of the Marine Corps afford further opportunity for the advancement of deserving enlisted men. Since the passage of the act 17 enlisted men have passed creditable examinations and received commissions as second lieutenants in the Marine Corps. Graduates of certain excellent military schools have also been appointed second lieutenants. In addition, in order to fill the authorized quota of second lieutenants in the Marine Corps, an examination has been ordered. Appointments will be made from States in proportion to population or their Representatives in Congress, as midshipmen at Annapolis are proportioned to the States.

ENLISTED PERSONNEL:

There has been a steady increase in the personnel of the Navy, but never during the past 16 years previous to March 4, 1913, was ample provision made for adequately manning the ships of the Navy as new ships went into commission. It remained for this to be accomplished in the naval act of August 29 of this year by which authority was provided to increase the enlisted personnel from 51,500 to 74,700 (68,700 men and 6,000 apprentice seamen). As a further increase the Hospital Corps of the Navy was fixed at 3½ per cent of the authorized enlisted strength of the Navy and Marine Corps, an increase of 2,929 men, and was made in addition to the regular enlisted complement in the Marine Corps. The total increases in the complement, therefore, amount to over 26,000 men, while the total number may be increased to 87,000 in time of national emergency. This will for the first time in this decade provide a personnel sufficient to man all the ships of the Navy in commission and to keep the necessary quotas on ships in reserve and in ordinary. The present authorized

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strength of the Navy (enlisted men and apprentice seamen) is 74,700 men. In the fiscal year 1907 it was 37,000. In the fiscal year 1911 it was 47,500 men. The last Congress made an authorization which more than doubled the number in 1907. If to the enlisted sailors now authorized (74,700) there be added 14,981 marines and 4,588 of other corps, we will have a grand total of 94,269, being 48,498 in excess of the total strength in the fiscal year 1907. To these men who enlist for service afloat, including marines, should be added approximately 25,028 men (an increase of about 6,516 over 1907) who serve the Navy in the principal navy yards or munition plants and are therefore a part, and an important part, of the personnel of the Navy. This makes a total of 119,297 men in the Navy, and to this should be added 6,750 officers of the Navy and Marine Corps, making a grand total of the personnel of the Navy of 126,047. This takes no account of the 9,334 officers and men in the Navy militia who give part of their time, and the growing number in the various reserves provided for in the 1916 law, who will make in time of need a valued portion of the fighting strength of the Navy.

On the 5th of March, 1913, the enlisted personnel of the Navy was 4,153 short of the authorized complement of 51,500. After careful study the problem was solved of why young Americans did not fill up the quota. An opportunity for education and opening new doors for promotion attracted young men who had not enlisted until these new advantages of service in the Navy were afforded. Then the youth of the country responded to these increased opportunities in the Navy, and during the past three years the complement has been several times in excess and a waiting list created, while the number of recruits actually enlisted in this time reached a total of 6,831. The satisfaction, too, in general, of parents with the opportunities thus presented to their sons is reflected in a letter which the department recently received from a pleased father just after he looked his boy over while he was home on furlough. Said this father: "I consider him improved 100 per cent from the day he left me two months ago in every way, physically, mentally, and especially in discipline." Not only have the bluejackets' increased opportunities met with a notable response from the young men of the country and with appreciation on the part of parents, but abroad the conditions of the American Navy's enlisted personnel have been conspicuously recognized. Mr. Hector O. Bywater, one of the great naval authorities, writing in a London service journal, says: "The American bluejacket is of a most admirable type and is fed, berthed, and cared for in a way that astonishes those who are acquainted with the best European standards."

The department was gratified over the response of the young men of America to the inducements offered by a navy career. The depart-

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ment, however, is not blinded to the fact that the total authorized increases in the complement since the passage of the new bill amounting to over 26,000 men in the Navy and 5,034 men in the Marine Corps impose a difficult and exacting recruiting task. The difficulties are accentuated by the unprecedented demand for labor throughout the country, particularly in the industrial centers, together with the increasing activities of other recruiting services. Since the passage of the act of August 29, 2,524 new men have been enlisted, for a part of the time the inflow averaging about 1,000 men a month. Trusting in the widespread conviction which has permeated the entire country that not only does the Navy offer an unexcelled chance to learn the great basic trades, but also that it beckons to a possible officer's commission, if the applicant is willing to pay the high cost which ambition and application impose, the department is nevertheless putting forth every possible energy to make this great recruiting task a success. In order to obtain the large increase, the Navy recruiting service has been extended to reach every section of the United States, and has been reorganized so that the country has been divided into the eastern recruiting district, which extends to the 103d degree west longitude, including the States of North and South Dakota, Nebraska, Kansas, Oklahoma, and the eastern portion of Texas and the western recruiting district, lying west of the 103d degree west longitude, and including the Rocky Mountain and Pacific States.

A printing plant has been established at the Navy publicity bureau, in New York City, which has been or will be equipped with the necessary machinery for turning out the booklets, circulars, small posters, hangers, blanks, and other literature needed in the Navy recruiting service. When the advantages offered through these agencies are brought home to the youth of the country the department is confident that the necessary recruits will be secured. In the literature put forth American young men will be reminded that the Navy Department has kept faith in the promises of promotion by merit made to them.

PROMOTION BY SELECTION:

The outstanding provision with reference to personnel in the naval legislation of the Sixty-fourth Congress was the adoption of promotion by selection in place of the antiquated and un-American method of promotion by seniority. This forward step is but the beginning of the tearing up by the roots in every branch of the service of advancement by age instead of advancement by ascertained merit. Under the old system the rewards for mediocrity and ability were the same. The new system makes promotion dependent upon ability, initiative, and resourcefulness. Promotion by merit through selection has always obtained in the assignment of officers to the positions

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as commanders of fleets and chiefs of bureaus, and in advancement among enlisted men, but promotion from grade to grade was based upon seniority. A brilliant man, gifted as Farragut or Dewey, under the seniority system abolished in September of this year, could never be advanced above the mediocre man who happened to have graduated a number ahead of him. It was an absurd method, lagging superfluous in our day, of denying reward to merit. For years some of the ablest naval officers advocated the real American principle of advancement by merit, but until the Sixty-fourth Congress it was doomed to defeat. After careful study, with three years' experience, and after very mature consideration of the logic and practical necessity of applying in the naval service the principle of promotion from grade to grade based upon merit rather than upon seniority as had heretofore obtained, I made my very earnest recommendations, in my last annual report, by letters to, and in my hearings before, the Naval Committees of Congress urging the passage of the recent act containing provision whereby promotion from the grades of lieutenant commander, commander, and captain will be made by selection, the legislation prescribing in detail how this should be done and insuring that such selection should be excluded from the effects of political influence and that no officer should be promoted from those grades who had not been selected for promotion by a two-thirds vote of a board of nine rear admirals. This adoption of the principle of selection in the promotion of officers in the Navy is, in my opinion, the most advanced and beneficial feature of constructive legislation which has ever been passed relating to the naval service. It had been my hope and desire that the principle thus found by Congress to be necessary for the three grades mentioned be applied for similar reasons to all ranks and grades in the service. Owing to the lack of time available for the consideration of this question during the final hearings, the selection feature was limited to the three grades mentioned. It is earnestly hoped that during the next session of Congress the principle of selection will be extended down to and including promotion from the grades of ensign, junior lieutenant and lieutenant in the line, and through corresponding grades in all of the staff corps of the Navy and in the Marine Corps.

In view of the fact that promotion by selection was not extended lower than the grade of lieutenant commander in the line, and having become convinced from my experience since my incumbency in this office that the written examinations required of officers, especially those of the lower grades, did not furnish an accurate index as to their capabilities in the actual performance of their duties, and in view of the very large number of promotions that were to be made as a result of the legislation refered to, I have instituted a new system of examinations whereby officers of the grades mentioned

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are to be subjected not only to a written examination but also to an oral and to a practical examination which will cover in a searching manner all the duties which they will be required to perform in the next higher grade. This was considered particularly necessary for officers of the lower grades, because the duties of such officers are to a very great extent practical rather than theoretical. While I do not believe that this change in the form of examinations will fully take the place of applying selection to these grades, nevertheless it is considered the greatest step in advance in that direction that could have been made until such legislation is enacted.

Under the personnel feature of the recent act it is provided that—

> Officers of the lower grades of the Medical Corps, Pay Corps, Construction Corps, and Corps of Civil Engineers shall be advanced in rank up to and including the rank of lieutenant commander with the officers of the line with whom, or next after whom, they take precedence under existing law.

Under present law, officers must, prior to promotion from grade to grade, be subjected to physical, mental, moral and professional examinations. The grades in the different staff corps are not altogether identical with those in the line, and it will be noted that the rank of an officer in the staff corps is, under the above-quoted provision, to change when his corresponding number in the line is promoted from one grade to another up to and including lieutenant commander. In view of the provision that the pay and allowances of officers depend upon their rank and that examinations only occur on promotion from grade to grade, it follows that the above provision permits staff officers to be advanced in rank and in emoluments without examination. This is clearly illogical. Staff officers should not be advanced in rank—with its corresponding emoluments—until they have, like line officers, demonstrated their fitness therefor by examination. As the law now stands, not only may staff officers be advanced without examination, but under the law if a staff officer fails in his examination for promotion, for example, from the grade of passed assistant paymaster to the grade of paymaster, his rank would nevertheless be increased with that of his running mate despite such failure in examination, and though he could not be promoted to the grade of paymaster he would continue as a passed assistant paymaster but his rank and pay would be increased notwithstanding. It is hoped that this very undesirable feature will be changed at the approaching session of Congress so that no officer will be advanced in the staff corps until after he has established his qualifications by examination.

Making immediately effective the principle of selection, the vacancies in the grade of brigadier general in the Marine Corps have been filled by selection from the grade of colonel, and the vacancies in the rank of rear admiral of the upper and lower half in the various

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staff corps will shortly be filled by selecting those officers best qualified for advancement to the higher grades. The selections for promotion in the Marine Corps were Cols. Barnett, Waller, Pendleton, Lejeune, and Cole. The board of nine rear admirals provided for in the new act and charged with the duty of recommending officers to be selected for promotion to the grades of rear admiral, captain, and commander in the line of the Navy has been ordered to convene on December 2.

EDUCATION:

The expansion of the educational work of the Navy noted last year has continued, and foundations have been laid for greater expansion in educational opportunities. Every man in the Navy is a student, from the admiral in the War College to the midshipman at the Naval Academy and the apprentice in the Training Station and afloat. The increased enlistment authorized calls for additional facilities at training stations. The beneficial result of the whole educational system in the Navy is that theoretical knowledge is almost immediately put into practice. Application is always eagerly waiting upon acquisition. It makes powerfully for efficiency. The man who does not wish to go to school ought not to knock at any door in the naval service. The Navy is the greatest educational institution in America, and in it theory is valued only as it is put into practice.

NAVAL WAR COLLEGE.

The Naval War College was established in 1884. The War College idea has now come to be enthusiastically accepted, though at the beginning there were not wanting officers who doubted the need for the education of officers in the art of war, or in any other art that could not be adequately mastered at the Naval Academy or on shipboard. And yet it would have seemed that the delivery in 1887 and 1888 at the War College for the first time by Capt. Mahan of his lectures upon "The Influence of Sea Power upon History" would have brought a profound sense of the possibilities of the college to all. It was then that the value of this great work, which probably affected as powerfully its generation as any other book written therein, was first realized. However, if the college had indifference to contend with in its early years, it was not in its early years without its friendships, and among its most helpful supporters were Admiral Porter and Admiral John G. Walker. The college, nevertheless, in its early days had a struggle for existence, and as late as 1893 there was a movement on foot to abolish it. In the beginning no work was required of anyone. The college stood as a place of opportunity, not in any sense as one of obligation. In spite of this attitude—perhaps, also, in some measure because of it—an obligation appears to

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have been assumed by the students themselves to take advantage of the privileges so generously offered. The course consisted of a summer conference from June to October, during which the art of naval war and international law topics were studied and discussed. The college was a thing more or less apart from the fleet, and at times was even an object of suspicion there.

In 1911 a "long" course was established to supplement the "summer conference," and was taken by four officers. When the present Secretary first visited the college in June, 1913, only five officers were taking the course. It seemed a wrong to tax the people to pay for this great institution and to have the Navy derive so little benefit from it. I declared its doors must be closed or its advantages utilized. It was therefore decided to send more officers to take the course. Its growth and expansion has, to a certain extent, by reason of the shortage of officers, not been as great as I had planned, but the college has grown from five officers in attendance to seven or eight times that number in three years. It now has 36 student officers pursuing a course of 12 months at Newport and a correspondence course which is taken by 450 officers of the Navy. Distinguished officers enthusiastically rejoice that the college as now conducted is at all times essentially a part of the fleet. Within the past two years all division commanders, all commanding officers of the Atlantic fleet, and all members of the War College staff assembled at the college for the purpose of discussing the relations between the fleet and the college. Without a single exception they agreed that it should ultimately be the established practice to order to important command, both ashore and afloat, only those officers who were graduates of the college. In contradistinction to the sentiment which seems to have prevailed a few years ago, every officer of the service is eager to have the privilege of attending. The college has had a quartette of notable backers more or less closely identified with it in the past—Rear Admiral Stephen B. Luce, who got it under way; Capt. Alfred T. Mahan, who, with his powerful lectures, gave it prestige; Commander Henry C. Taylor, who, by his tact and diplomacy, saved it from wreck in its darkest and stormiest days; and Lieut. McCarty Little, who, by his contagious hopefulness and illuminating teaching, guided it to enlarged usefulness, introducing the war game.

The progress of the college under Rear Admiral Austin M. Knight, now president, has been most gratifying. In heartiest cooperation with him it has been possible to establish the long courses at 12 months, beginning with January and July, with not less than 15 officers above the middle of the list of lieutenants in each class, the staff, including the president, to consist of 9 officers; to these 30 officers will doubtless usually be added several officers of the Army and of the Marine Corps. A limited summer course is to be taken by as

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many officers as can be spared from other duty, while a correspondence course is established. This year the total number in attendance was 41, with a staff of 7 members, and every one of them a graduate of a long course. In the language of Admiral Knight, the college now "is an institution of definite aims, pursued by definite and above all by organized methods."

THE NAVAL ACADEMY—NEW BUILDINGS NEEDED.

The Sixty-third Congress looked ahead in providing for an increase of officers in the Navy, and the Sixty-fourth Congress also took a forward step in authorizing an additional appointment at Annapolis by every Member of the Senate and the House. The law enacted in 1903 authorizing two appointments by each Member of Congress had expired, and in May, 1913, Congress extended it. The Sixty-fourth Congress, as its first step in preparedness, passed a law authorizing an additional appointment for every Senator and Representative, so that now 1,762 midshipmen is the possible number that may be appointed. As has always been the case, a considerable percentage of the appointees fail to pass either the mental or physical examination, and the actual increase of midshipmen at Annapolis since the passage of these laws has been 462. The new fourth-class numbers 625, the largest in the history of the academy. The number present now is 1,230, as against 768 in 1912. It was foreseen that the usual percentage would fail, but enough additional appointees were successful to require changes in the buildings at Annapolis to accommodate those who entered this fall. It will be necessary for Congress at the approaching session to appropriate a sum sufficient to erect additional buildings and provide extension of present buildings, or both, to accommodate the increased number of midshipmen already authorized, and to further increase the capacity of the Naval Academy if an additional number of midshipmen is authorized shortly. Such provision will be required either now or after the new buildings are completed, because a still further number of officers must be trained for the larger Navy which Congress has authorized. The size and character of the additional buildings to be provided is a matter that should receive the early consideration of Congress. We should build for the future and along the most approved lines. There is also need of an adequate building for the post-graduate school at Annapolis. The suggestion has been made that a site and buildings for the marine barracks be obtained at some other location than Annapolis, and the present quarters at Annapolis occupied by the marines to be converted into a post-graduate school. There is much to be said in favor of this change, and I recommend that Congress take the suggestion under consideration.

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Too much can not be said in commendation of the superintendent, the commandant, and their associate officer teachers and civilian instructors at Annapolis, for the great work they are doing and for their wise action in promptly making arrangements, without waiting for increased appropriations, for housing and providing classrooms for the increased number of midshipmen. The spirit at the Naval Academy was never better than now. The era of good feeling has come between the midshipmen and the officers and instructors. It is all that could be desired. The midshipmen have responded cheerfully and unitedly to the confidence reposed in them and the added responsibilities imposed upon them. Such response is the best guarantee of the steadily improving character and fitness of the future naval officers. Hazing has been stamped out by the cooperation of the midshipmen, athletics have been placed on the highest plane, standards of scholarship and military training have been improved, and the deportment and demeanor of the more than twelve hundred young men who are to command our greater Navy has never been surpassed in the history of the academy since it was established by the great Secretary of the Navy, George Bancroft, in Polk's administration in 1845.

MEDICAL COLLEGE AND PAY OFFICERS' SCHOOL.

In Washington, under the direction of the Surgeon General, the United States Naval Medical School of excellent grade trains prospective young naval surgeons, and the course is thorough and the standard high.

Under the direction of the Paymaster General the Naval Pay Officers' School for training prospective pay officers in the Navy and Naval Militia affords valuable instruction in their professional duties to 15 newly appointed assistant paymasters of the regular Navy and also to 16 pay officers of the Naval Militia from various States, one of whom came all the way from Honolulu and another from California for the special purpose of enrolling for a course of instruction at the school. An officer of the pay corps, particularly well qualified by over 10 years of practical experience afloat and ashore, was detailed to instruct the student officers.

MARINE OFFICERS' SCHOOL.

The instruction in the Marine Officers' School, always excellent, has been improved this year, and its advantages will be extended to the extraordinarily large class of second lieutenants provided in the last naval bill.

EDUCATION OF BLUEJACKETS.

The American Navy is largely a boy institution. The bluejacket enlists at 17. The average age of officers and men when the fleet

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went around the world was 22. The authorized complement of the enlisted personnel was 51,500 when the new act of August 29, 1916, became the law increasing the complement to 74,000 in peace—68,700 men and 6,000 apprentice seamen—and 87,000 in emergency. At the training stations they are drilled and given the rudiments of naval training. They are given technical instruction and taught the three R's and this academic instruction is continued aboard ship. The instructors are the younger officers recently from the Naval Academy and warrant officers.

The American Navy offers as fine an opportunity as exists to the American youth who wishes to win in the race of life. The vast majority of boys in graded and high schools study their geography out of books. The bluejacket studies geography aboard ship and compares the "book learning" with the real thing as he circumnavigates the globe. The school boy at home gets his history out of the books, but the bluejacket may add to his book knowledge a glimpse of the inside of Westminster Abbey, or a sight of the Coliseum at Rome, as he is given leave while on his vessel's cruises around the world. He has the fourfold opportunity of serving his country, learning a trade, and improving his mind in study and travel.

We live in a day when the individual is trained as never before. Not only are his present attainments being built upon to increase his usefulness to society, but his latent forces are being coaxed into flower and fruitage. Every angle at which a man may be developed makes him better fitted for service, and in developing the men of our Navy individually along the line of the natural endowment and the outcropping bent of mind of each I believe a greater efficiency for teamwork is secured, which enhances the value of the men behind the guns in the day of battle. A man is a better coal passer for being able to parse sentences and bound the States of his country. That conviction is deep seated, and no other view is American. Those who deny it contradict Horace Mann's fundamental principle. A radio operator will not be the less valuable for having studied the science of electricity. The lad at the wheel, who keeps the captain on the bridge informed as to whether the ship is on her course or not, must be even a better man for his job if he knows how to triangulate. And the boys behind the guns will be more efficient gun pointers from having a knowledge of applied mathematics. If the enlisted man does not remain long in the Navy, his usefulness to his country as a citizen is nevertheless enhanced by what he has acquired in the Navy schools.

An attempt has been made to prove that many boys go into the Navy because they really do not wish to go to school at home. I have seen no sufficient evidence, since the school on board ship was first successfully tried out on the *Des Moines* in 1913, that American

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youth enters the Navy for a four-year bluejacket truancy afloat. The school system in the Navy has, I believe, appealed strongly to American parents, and almost as strongly to American youth itself. Certainly it is a fact that a deficiency of 5,000 in the complement of enlisted men has been overcome since 1913, after schools had been established, and at times there has been a waiting list for bluejackets.

The Navy offers a wide variety of industrial courses to ambitious young men. If the recruit has had some training or experience in electricity, he may enter either the general or the radio classes of the electrical schools, one at the Brooklyn and the other at the Mare Island Navy Yard. Here the course of instruction comprises machine-shop work, reciprocating steam engines, steam-turbine engines, internal-combustion engines, magnetism and electricity, dynamos, motor generators, alternating currents, batteries, and the like. In the radio group there is thorough practice in the radio mechanism for receiving and sending. In the Artificer School at the Norfolk Navy Yard men are taught to be shipwrights, ship fitters, blacksmiths, painters, and plumbers. Both at Newport, R. I., and San Francisco are yeomanry schools, where the men are perfected for the clerical work of the Navy to become expert stenographers, typewriters, bookkeepers, etc. An attractive line in the Navy is the Hospital Corps, with schools at Newport, R. I., and San Francisco. Not a few men have gone out of these schools after their Navy service to make good doctors in civil life, after the thorough training received in anatomy and physiology, nursing, first aid, and emergency surgery, hygiene and sanitation, pharmacy, materia medica, toxicology, chemistry, and the like. Music is essential to vary the secluded life afloat, and boys with musical talent are instructed in the schools at Norfolk and San Francisco. The machinist school at Charleston is open to men who show themselves apt in mechanical work. The coppersmith school is located also at Charleston. The two commissary schools are at San Francisco and Newport. At Pensacola every three months a class of 16 enlisted men, selected by the commander in chief of the Atlantic Fleet, is trained for an 18 months' course in aeronautics. The course is divided into two classes—mechanics and flying. The men are afterwards transferred to general service and are entitled to additional pay of 50 per cent while detailed to the duty of actual flying. The seaman gunners' school is located at Newport, where a special study of the torpedo is made.

Under 20 years of age and after a year's service, a bluejacket may stand the examinations for admission to the Naval Academy, where 25 lads from the service are admitted annually. Here they are making good, and one of them has already been elected president of his

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class. If he is studious and ambitious, the bluejacket may rise in due time to wear the much-envied four stars of an admiral.

But whether a bluejacket remains in the Navy with opportunity to climb to the highest pinnacle of success, or whether he learns a trade and retires eventually to civil life to ply it, he gets in the Navy one of the finest trainings available anywhere, an experience unique and broadening, and in which he is well fitted for the duties of patriotism and of citizenship in the greatest Republic on the globe.

ADDITIONAL OPPORTUNITIES FOR ADVANCEMENT OF ENLISTED MEN.

Under new rules, adopted since 1913, 15 enlisted men have been commissioned as assistant paymasters, 64 as pay clerks, and in the future all pay clerks will be promoted from the ranks instead of by the personal appointment of pay officers. Thirteen enlisted men have been promoted to the rank of ensigns. Enlisted men are also eligible for commissions in the Aviation Corps.

Reference has been made in my previous annual reports to advantages attendant upon the operation of the law of 1901 permitting warrant officers to qualify, by competitive examination, for commissions as ensigns in the line of the Navy. This law, however, restricts its benefits to boatswains, gunners, and machinists, and makes no provision for the similar advancement of other warrant officers. It is recommended that this law be amended to permit such officers, under generally similar conditions, to qualify for commissions in their respective corps. This amendment would be in the direction of widening the opportunities for advancement of enlisted men, a principle which has been consistently urged in my annual report each year. It will, furthermore, provide an additional source from which the Staff Corps of the Navy can be recruited, and the present demand for additional officers in all branches of the service is so urgent that no source of available and efficient material should be overlooked.

HEALTH AND SANITATION:

The chief object of concern in the Navy to the Surgeon General and the Medical Corps, is the matter of health and sanitation and the clean living of the personnel, essential to efficient service. I doubt if the families or friends of the young men who enter the Navy realize how carefully guarded as to health conditions these young men are. No institution of private training is so zealous for the well-being of its charges, or so watchful for the preservation of its own good name as is the Medical Department of our naval service. A constant pride is exhibited by our medical officers in maintaining health and sanitation on the ships or stations under their care, and constant efforts are being exerted to provide further safeguards.

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Mortality statistics tell us that if these young men remain on the farm or in the city, eight out of every thousand will die during the year from the ordinary hazards open to all of us in the way of disease and injury during what should be the healthiest years of our lives. But last year only 4.48 per 1,000 of the naval personnel were lost by death. Could anything be presented more convincing of the efficiency and devotion of our caretakers of health?

Incident to the nature of a seafaring life is of course the constant menace of drowning, and of our total deaths 51, or one-sixth, are due to this cause. Of these, however, 21 are those who went down with the *F-4*.

It is noteworthy that the three predominant causes of death, drowning, tuberculosis, and pneumonia, all show upon analysis encouraging improvement over preceding years. Tuberculosis also, as it is handled in the Navy, is found less frequently in naval than civilian life. To quote statistics again, our civil population between the ages of 15 and 60 years owes 30 per cent of its total deaths to this disease; naval mortality during 1915 owes 11 per cent of its deaths to this cause, and this is being materially bettered each year.

The activities of the medical department of the Navy during the past year have been unusually marked. Naval and military developments of this unprecedented epoch of military history are constantly being observed and proper use made thereof in the plans and activities of our own service. Our medical officers detailed for observation purposes with the warring powers are informing themselves of all facts available pertinent to the medico-military aspects of naval life.

Our own military activities in the last two years have devolved upon our shoulders a large degree of medical care and treatment of the people of Haiti and Santo Domingo. In the former country affairs have resolved themselves into the formation of an orderly system of government, in which the United States is doing its utmost to lend assistance to the local medical authorities. Our medical officers, acting in amicable unison with a commission of leading Haitian physicians, have gone over the existing laws relative to public health matters, and new laws have been drafted making necessary changes. Certain of the more important of these changes are now being put into execution under the present régime until such time as the proposed alterations of the Haitian statutes can be secured. Undoubtedly the future will yield as much credit for notable sanitary efforts here as has been the case in the past in Panama and Porto Rico.

The usefulness of a hospital ship as a necessity in modern warfare has been emphasized by the European conflict, and the naval act of this year, besides increasing the Medical Corps from 347 officers and 1,500 men to 600 officers and 3,000 men, besides facilitating

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advancement in the Hospital Corps from the lowest enlisted rating to that of actual commissioned officer, and besides increasing the total appropriation for the medical department from $682,000 last year to $1,187,728 for the current year, has led the navies of the world in authorizing the construction of a model hospital ship, which will be a veritable Bellevue afloat. The war across the Atlantic has demonstrated the value of the hospital ship. The British alone employed over 40 ships of this class during the Gallipoli campaign. These ships and the ships employed by other nations, however, were designed for other purposes and hastily converted to meet the emergency. The new hospital ship being constructed by the Philadelphia Navy Yard will be an oil-burner, with all that this means for comfort and cleanliness. A stabilizer will make for steadiness afloat. Not only will she provide hospital accommodations for the sick of the fleet, but experience of a number of years with the *Solace* has shown the necessity of making provision for an out-patient department, wherein men of the fleet may receive special treatments and examinations, returning to their ships on the same day.

The Navy is also to be congratulated upon the consistently maintained standards that are giving us a personnel which is the pick of the ambitious youth of our Nation. During the past year 106,392 sought enlistment in the Navy. Of these only 30.18 per cent were accepted. During the last four years, owing to a full or relatively full complement, the large number of applicants, and consequent ability to make more careful selection, the percentage of acceptances has decreased from an average for the previous six years of 52.67 to 30.18. The present rigidity of physical requirements not only insures a fine standard of men but helps to lighten the pension load of the country in future years. The urgent need of more men, as would happen in time of war, could be met by a modification of the standards without entailing the acceptance of any deficient types.

The provisions made for the medical department by the Sixty-fourth Congress, on the recommendation of the department, were timely and far in advance of any former provision. Promotions and higher rank were accorded to the commissioned officers. The reorganization of the Hospital Corps insures advancement in their profession and promotion in rating to all, under methods of training and recognition of ability not before possible. This progress had its inception in the establishment in 1914 of the two finest professional training schools for hospital corpsmen in the world, one on the Atlantic at Newport and one on the Pacific coast at San Francisco. Hand in hand with this training there now exists a satisfactory steady flow of promotion through ratings similar to those of the seaman branch, established by a recent act of Congress in the appropriation act for 1917.

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Successful schools have been established in Samoa and Guam for training native women in nursing. Homes for nurses at Mare Island and Boston have been furnished, and provision has been made on the coast lines south of Norfolk and Mare Island, which are as yet unprovided with Navy hospitals, for the calling into being of mobile Red Cross hospitals of 250 beds each, with complete personnel and equipment. To prepare the Medical Reserve Corps a correspondence school has been initiated for the purpose of training these officers. The higher standards, the zeal and sacrifices of the men in this corps, and their devotion to health and sanitation, can not be too highly commended.

Authority has been given by Congress for an ample reserve stock of medical and surgical supplies, which is recognized as essential in a comprehensive plan of being ready for emergencies.

REFORMS IN PUNISHMENT:

Can we hope for the day when prisons will no longer be needed in the Navy and discipline be maintained without them? Not yet; but within three years, though the enlisted strength of the Navy has increased more than 6,000, the number of prisoners has decreased from 1,835 to 620, and the number steadily diminishes. And with it there has been a steady improvement in discipline and a marked improvement in efficiency.

I noted in my last annual report the adoption of the principle of suspended and indeterminate sentences in the cases of naval general court-martial prisoners and men under sentence of summary court-martial. At that time the results were still considered tentative in nature. It is therefore with pleasure that I now report that this reform has proved a distinct success, the reports received, both officially and unofficially, during the past fiscal year indicating that the results obtained have been more gratifying, in humane and in economic features as well as in the beneficial effect upon discipline, than was even anticipated.

This new system merely applied to the naval service the principle of suspended and indeterminate sentences which had been found so highly sucessful in civil life. It differs from the old system in that, instead of incarcerating a man, guilty of a purely military offense, without pay for a long period, to be dishonorably discharged at the expiration thereof, a first offender whose record warrants it is placed on probation, usually for one year, at his regular station of duty, and the adjudged sentence of the court is held in abeyance. During this period the probationer is permitted to draw one half of his pay, the other half being withheld, to be paid him at the expiration of his enlistment, if his conduct and general efficiency have been excellent. By this means, there is a constant incentive to men

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who really desire redemption, to conduct themselves in an exemplary manner during the remainder of their enlistment, because by so doing they can wipe out the dishonorable or bad conduct discharge which has been held in abeyance, and earn back the salary which has been withheld. Thus the sentence of the court may, by their own efforts, be reduced to a merely nominal one.

In the beginning the institution of this radical step caused some unfavorable comment; however, the approbation which it has received from officers intrusted with command, since its operation has been more clearly understood, has exceeded the expectations of the department. Having been in operation throughout the fiscal year 1916, authoritative data now exist as to its effect from both a humanitarian and economic viewpoint, as well as its effect upon discipline.

From a humanitarian point of view it may be repeated that the number of naval prisoners of all classes has been reduced from 1,835, the number shortly before the system went into operation, to 620 at the present time, although the number of men actually in the service during this time has been largely increased. The men who would otherwise have been confined in prison have been retained on board ship on probation, as above described, rendering useful work. Statistics show that a larger percentage of men serve throughout their probationary period and are discharged in an honorable status than was the case with the corresponding class of offenders restored to the service after a year or more of nonproductive confinement in disciplinary barracks under the old system.

From an economic point of view it may be stated that the prison account made up by the Bureau of Supplies and Accounts, covering the entire prison system of the Navy for the year 1913, showed an expenditure of $1,190,514.39; in 1914, $822,923.03; in 1915, $643,461.34. The account for the fiscal year 1916 is not yet completed. Inasmuch as the disciplinary barracks at Port Royal and the naval prison on the U. S. S. *Philadelphia* were permanently discontinued during the past year, the expenses incident to their maintenance will be a large item of saving in the future. The prison accounts of that portion of the fiscal year subsequent to the closing of the above-mentioned institutions show that at the present time the prison system of the Navy costs the Government approximately $350,000 per year. A monetary saving of $850,000 per year is thus shown for the system, besides certain other savings, such as transportation of prisoners, guards, additional upkeep of quarters, etc., which are charged under other appropiations. A portion of the above saving is in the reduction of the salary account of prison guards, who are now performing strictly military and expeditionary duty, for which the Marine Corps is primarily intended, rather than acting as prison guards.

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The above saving could not be cited with satisfaction were it obtained at the expense of the discipline of the service. The effect of the new system upon discipline of the service may be arrived at both from the statements of commanding officers and the satisfaction of the enlisted personnel, as well as from actual statistics. The almost unanimous opinion of the commanding officers of the service, as obtained by special confidential letters, as mentioned in my previous report, strongly establishes the beneficial effect of this system upon discipline. This is confirmed by the statistics during the past year. These statistics show that during the past year there has been a decrease of 1,251, or approximately 20 per cent, in the number of men discharged in other than an honorable status. This decrease has occurred during a year in which the demand for labor and the corresponding inducements for men to leave the service and secure employment in civil life have been abnormal. During the year, despite the fact that there were 1,500 more men in the service, there has been a reduction in the number both of desertions and of men tried by court-martial, and an increase of 1,848 men, or approximately 18 per cent, discharged in an honorable status as compared with the preceding year. Desertions have decreased in the last year 1.4 per cent in the Marine Corps and 0.46 per cent in the Navy. One and seven-tenths per cent of men were tried by general court-martial last year as compared with an average of 2.02 per cent during the last three years.

In connection with the reforms above noted since my incumbency in this office I have made a consistent effort to reduce the length of time elapsing between the arrest of an offender and the final disposition of his case, and it was made possible by the wise policy of the able Judge Advocate General. The improvement effected during the preceding year in this respect has been most gratifying, the average time elapsing from arrest of offenders until final disposition of case being reduced during the year from 31⅞ days to 14 days, being a reduction in average time of 55 per cent. In order to effect this improvement it was necessary to consider and watch every detail and every operation connected with the trial, from the first consideration of the report against the offender to final disposition of the case. It is believed that this can not under normal conditions be further materially reduced.

While gratified at the marked success of the new and modern system of penology inaugurated, a careful study of methods of discipline and punishment is being made in the hope of still further reducing the number of men confined or under suspended sentence. Just treatment and consideration have improved the satisfaction of the enlisted personnel and increased efficiency. It is believed that the only way to perfect naval efficiency and reduce desertions is to make

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every enlisted man feel that officers are his best friends, and this is possible only when officers are actuated by a spirit of justice, as is nearly always the case. That feeling has grown with the passing years.

The prevailing spirit now in the Navy is that officer and man, each in his own assignment of duty, are working to make the ship a perfect fighting unit, united in a common service for their common country. What has been accomplished in better methods, which secured better discipline, is but an earnest of what the new and more humane methods which have been adopted will do in the improvement of the naval service. I have requested Hon. Thomas Mott Osborne, humanitarian, expert in penology, to visit naval prisons, study the methods in operation in the Navy, and to make suggestions which may lead to further reforms, and this service he has patriotically consented to render. It is recognized that in radically departing from century old methods of punishing military offenders, only one long step has been taken. Further study, with suggestions from civilian experts and from those within the naval service, without whose cooperation reforms already effected would not have been possible, should result in the best system which can be devised. Nothing but the best will be satisfying. Ancient severe punishment for military offenses in times of peace have no place in present-day naval administration.

IMPROVED BUSINESS METHODS:

The volume of business incident to Supplies and Accounts contracts has increased since my last annual report by over 43 per cent. Notwithstanding this tremendous increase, by introducing new methods of handling bids inside of the department and by requiring the greatest dispatch from everyone to whom bids may be referred prior to acceptance, the average time required to award contracts was 12 per cent less than during the best month of 1915. This has resulted in making the Navy's business increasingly attractive and has stimulated competition to a most gratifying extent. Just what such methods of conducting the Navy's business mean to the manufacturer and to the business world in general can probably be best illustrated by quoting from a letter very recently received by the chief of the Bureau of Supplies and Accounts from one of the largest concerns on the west coast:

> We wish to take advantage of this opportunity of expressing our appreciation of your hearty spirit of cooperation and the prompt action you gave this entire schedule. Under exceptional market conditions such as are existing at the present time, your efficient manner in handling large propositions of this kind is of all importance to contractors and does much to create a keen competition for the business, with a consequent saving for the Government.

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With market conditions constantly fluctuating on account of the unprecedented conditions brought about by the war, one result of shortening the time taken to award contracts has been a direct saving to the Government in the purchase of supplies of all kinds for the naval service, bidders being able to quote closer prices when they know that their bids will be acted upon before the market has had time to change. With the last appropriation for the Navy amounting to over $300,000,000, a considerable part of which is spent for materials to build new ships and repair and otherwise keep up in condition those we now have as well as for the purchase of vast quantities of miscellaneous stores and general supplies needed by all branches of the service, the efforts that have thus been made to increase the purchasing power of every dollar spent and to bring about greater harmony in the department's dealings with firms regularly doing business with it (of which there are nearly 8,000) have been most opportune—coming at a time when the most rigid economy and business foresight were needed in order to offset in some measure the soaring prices that everywhere prevail and thus make it possible to keep within the appropriations which Congress has made for the Naval Establishment.

In addition to expediting the award of contracts as outlined, the time required to pay contractors' bills has been considerably reduced. Where previously the daily average number of public bills on hand awaiting payment was 978, there were on hand unpaid on the 30th of June last but 11.

In order that the increased cost of many supplies required by the Navy may better be realized, the comparative prices of a few of the commodities recently contracted for will be of interest. Lake copper which before the war was 15 cents a pound jumped to 23 cents. Zinc, used in galvanizing, composition metals, paints, etc., and of which the Navy uses a great deal has doubled in price. Shellac, one of the principal components of ship's-bottom paint and of which great quantities are used annually, has likewise doubled in cost. Serge and flannel, used to manufacture uniforms for the enlisted men, now costs over 70 per cent more than it did before the war. This increase in the cost of supplies all along the line has been particularly noticeable in the advance in the cost of shoes, which are now $1 higher than last year.

In addition to the successful methods already referred to which were adopted to effect economy wherever possible, every other expedient that would in any way contribute to reduce the cost of supplies to the Navy has been introduced and with the most marked success. This has been possible only by the closest study of market conditions and by being alert to take advantage of every opportunity to save money when making big purchases of raw materials, thus effecting substantial economies.

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A NEW DEPARTURE IN PURCHASING.

As it became more and more evident that greatly advanced ocean rates would enormously increase the cost of those raw materials usually obtained abroad, a plan was put into effect of purchasing such commodities in great quantities in the natural markets where they are produced and then using naval colliers to bring the purchases to this country. In this way a two years' supply of tin was bought in Singapore for $20,000 less than it would have cost otherwise; 5,000,000 pounds of sodium nitrate were contracted for in Antofagasta, Chile, and brought back by naval collier at a net saving on the entire purchase of $60,000. A similar method used in purchasing shellac in Calcutta, the natural market for that product, netted a total saving on 1,500,000 pounds of $67,000. Thus by realizing a saving on these three products of something over $147,000 has the wisdom been established of going into the natural markets for materials of this kind, at least until after the war, when ocean transportation, which has now for so long been almost wholly disrupted, again becomes normal with reasonable rates prevailing. In addition to the tin, nitrate, and shellac cargoes, the established policy of bringing back hemp from Manila in naval colliers resulted in 2,442 tons being obtained in this way during the year at a saving of $45,595.

ECONOMY IN OBTAINING FUEL.

Particular attention has been paid to the purchase of fuel, both coal and oil, during the year. Following the policy adopted last year of obtaining the widest possible competition on all coal purchased for the Navy, a number of producers whose mines contain coal suitable in every way for naval use have been added to the bidding list, and more healthy competition for this business has been secured. It is pleasing to note that, directly traceable to the continuation of this "open door" policy in the purchase of coal, the Navy is enjoying a reduction in the price of from 20 to 25 cents a ton, making a total saving in the cost of coal consumed during the year of $200,000.

As the new oil-burning dreadnaughts and other vessels have taken their places in the active fleet, the consumption of fuel oil has greatly increased; 842,432 barrels have been burned this year, as compared with 521,382 barrels in 1915. With the rise in the cost of so many other materials forecasting a like increase in the price of fuel oil, particularly on account of the tremendous increase in the exports of this fuel, which is in such great demand by the navies of Europe, every effort was made to fill all available tankage under the favorable contracts yet in effect, upon the expiration of which a material advance in price was made by the suppliers. By arranging a sched-

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ule designed to keep the *Arethusa* and *Kanawha* engaged to the greatest possible extent on the run between suppliers' pipe lines and the Navy storage tanks, the maximum quantities of fuel oil that could be taken under the contracts in effect at Port Arthur, Tex., were loaded on these vessels, and the storage tanks at Guantanamo, Key West, Norfolk, New York, Newport, and Boston were replenished to capacity before the higher prices went into effect. Approximately 300,000 barrels were thus taken, the net saving being $107,000.

SAVINGS BY NAVAL COLLIERS.

The continued scarcity of merchant bottoms in which to transport coal to the Orient for the use of our ships on the China station and the consequent high offers made by ship owners to undertake this service has caused me to maintain the policy adopted last year of utilizing naval colliers in keeping the Asiatic Fleet supplied and in replenishing the coaling stations on the west coast, although the latter service has been interrupted to such an extent by slides in the Panama Canal which closed it for quite some time that for the first time in the history of the Navy coal for the use of the Pacific Fleet has been transported across the continent by rail, 50,000 tons in all being dumped at Tiburon and San Diego. The *Proteus* and *Nereus* have, during the year, carried a total of 39,805 tons of coal to Cavite, Olongapo, and Guam, which at the rate quoted for this service by responsible ship brokers of from $10 to $30 per ton shows a saving by using our own colliers of $700,000. This amount includes the saving effected in the cost of transporting the cargoes of tin, shellac, and hemp brought back on the return trip of the colliers from the Orient as well as the freight charges which were saved by carrying large quantities of miscellaneous stores on the trip out.

Particular attention has been paid to the ration, and the men have been furnished with food in plenty, unexcelled in quality and variety. To thus feed the men to their entire satisfaction and contentment and yet keep the cost within bounds with the price of foodstuffs everywhere soaring required the greatest care and unremitting attention. Notwithstanding the conditions unfavorable to economy which have constantly existed, it is a fact that the cost of the ration this year shows an appreciable reduction as compared with its cost for the two years immediately preceding the war. Department of Labor statistics show that the cost of 26 of the most commonly used foodstuffs has advanced 5 per cent during the two years of the European war as compared with the two years preceding it; meanwhile there has been a decrease of over half a cent in the daily cost of the ration per man during the year. Taking into consideration the rise in the provision market, this means that the comparative cost of subsisting

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the Navy during the past two years was something over $1,000 a day less than for the two-year period preceding the war. This has been practicable owing to a number of changes in the manner of administering the commissary department aboard ship, foremost among which is the requirement that the galley facilities on all ships shall be used to the greatest extent practicable in preparing food from the raw materials instead of purchasing patent prepared foods and pastries which are neither as acceptable to the enlisted men nor as economical as the same things "homemade."

THE BEST FED NAVY IN THE WORLD.

That this feature of the men's welfare has been well looked after and the standard of the ration by no means lowered, official reports from all sources abundantly attest. The Medical Department, which is charged with safeguarding the health of the personnel of the Navy, is particularly interested in the ration in so far as it affords a foundation for the general good health of the men, and on August 29, 1916, the Surgeon General made the following statement to the Paymaster General of the Navy, based on reports from the medical officers of individual vessels of the fleets:

I was prompted last year to write you a letter advising you concerning the excellent opinion expressed by the medical officers of our service on the work of your department and on the quality of your ration. I gave you a few samples of the many commendatory paragraphs of this tenor excerpted from the annual sanitary reports. The reports of this year have been even more favorable, and I would repeat them here were it not that the repetition might seem monotonous.

I can assure you, however, that no Navy in the world is as well fed, as well clothed, its general welfare so thoroughly looked out for as that of the United States, and I am glad to offer you and the entire personnel of your corps my heartiest congratulations for the large share you have had in producing this well-being and its resultant contentment.

Owing to the steady rise in the metal market, particularly the high price of copper and brass, the reworking of scrap composition, and the pigging and remelting into ingot form of 1,937,784 pounds of scrap brass and copper at the Portsmouth and New York Navy Yards has resulted in a saving of $109,000. In addition to this, 4,000,000 pounds of carefully selected scrap copper and brass were used at the various yards in making castings. The castings made from this scrap proved to be in every way as satisfactory as if new metal had been used, whereas by using this old scrap instead of purchasing new metal a saving of $240,000 resulted.

LOWERING THE COST OF CLOTHING.

The clothing factory at Charleston has been able to manufacture the garments made there at a substantial reduction in cost as com-

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pared with the cost of the same garments before the Charleston factory was established. An output sufficient to meet increasing demands during the year has been satisfactorily maintained, without any appreciable increase in its facilities; additional machines and more operators will be added in the near future, however, so that production may keep pace with the growing demands due to the large increase which Congress has authorized in the enlisted strength of the Navy. Judging from the results already achieved, it is confidently expected that the increased manufacturing facilities will make possible a still further reduction in the cost of all clothing manufactured there, which reductions will accrue directly to the benefit of the enlisted men to whom all such garments are sold at as near the actual cost of manufacture as practicable.

Vessels Lost and Salvaged.

The year has been marked by an unusual number of casualties to ships, which, in two cases, have involved extensive salvage work, with completely successful results in one case, operations in the other case having been suspended until the return of favorable weather in the spring. Three cases have involved the temporary or permanent loss of a vessel, these being the sinking of the U. S. S. *Terry*, the beaching in a storm of the U. S. S. *Hector*, and the driving ashore by waves of extraordinary violence of the U. S. S. *Memphis*.

The U. S. S. *Terry*, a torpedo-boat destroyer of 740 tons displacement, struck a reef when entering the inner harbor of Puerto Plata, San Domingo, on June 10, and subsequently sank in such a position that the greater part of the main deck was submerged. This casualty was fortunately not accompanied by any loss of life. The department at once engaged the services of the nearest wrecking steamer, which arrived on the scene on June 13. Salvage operations were at once commenced, under the general supervision of the commanding officer of the *Sacramento*, the officers and crew of the *Terry* cooperating with the wrecking company, whose services had been engaged. Despite the peculiar difficulties involved, due to the very light construction of the vessel and the nature of the bottom on which she lay, the *Terry* was floated on June 26, temporary repairs were completed July 7, and she was safely delivered at the navy yard, Charleston, S. C., on July 15. The complete repairs will be finished and the vessel again placed in service about December 1, less than six months from the date of the accident.

The U. S. S. *Hector*, a naval collier of 11,230 tons displacement, was damaged in a storm of the greatest violence on July 14, 1916, and went ashore on the coast of South Carolina. There was fortunately no loss of life, as all officers, crew, and passengers were taken off by vessels which went to the assistance of the *Hector* in answer

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to her distress calls sent out by radio. The vessel broke in two after going ashore. Although the wreck was in a very exposed position, there appeared to be a reasonable chance for successful salvage operations, by which the two ends of the vessel could be raised separately and be taken to the navy yard, Charleston, for rejoining and repairs. Salvage operations were continued until the end of October without success, owing to abnormally bad weather. After November the danger of winter storms precluded further work. An examination of the wreck will be made as early in the spring as the weather permits, and further efforts to salve the vessel will then be made if the conditions appear to warrant such action.

The U. S. S. *Memphis* (formerly the U. S. S. *Tennessee*), an armored cruiser of 14,500 tons displacement, was lying at anchor in the harbor of San Domingo City, San Domingo, on the afternoon of August 29. The sea was smooth, and no storm warnings had been received. Suddenly the sea rose, and waves resembling tidal waves in size rolled into the harbor, lifting the ship by successive steps, and finally, in less than an hour, depositing her on the rocky bottom in from 12 to 19 feet of water and only 40 feet from the precipitous shore line. The loss of life on the vessel itself consisted of three men washed overboard and seven men who died as the result of injuries from the bursting of a steam pipe, probably caused by the displacing of several boilers from their seatings when the bottom of the vessel was forced upward by successive blows on the rocky bottom. In addition, 25 men were drowned from small boats while enroute from the shore to the ship, and 5 men from 2 other boats which had put out to sea for safety but were finally driven ashore during the following night. The wreck has been carefully examined by both naval and civilian experts, the consensus of whose reports is to the effect that although the salvage of the vessel, as a whole, is practicable the cost would be excessive and the ultimate delivery of the vessel at a repair port would be a difficult and dangerous undertaking. The salvage, if successful, and repairs would take between two and three years. In view of the great expenditure which would accompany an attempt at salvage, whether successful or not, and the certainty that, if successful, the ultimate cost of salvage and repairs to place the vessel in serviceable condition would be close to the present book value of the ship; and further, in view of the fact that the *Memphis* is of a class no longer constructed by any naval power, of comparatively small military value, and, if repaired, by two or three years from now would, in view of her age, etc., do little or no active service thereafter, the department has decided not to undertake salvage operations. In the meantime all articles of a portable nature, whose value is commensurate with the cost of removal, are being recovered, and shipped to the United States when-

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ever Government transportation is available. Subsequent to the stranding of the *Memphis* the Government and citizens of San Domingo extended the utmost courtesy and hospitality to the officers and crew of the vessel.

The Work of the Consulting Board.

The year has witnessed the perfecting of teamwork between the experts of the Navy and the outside scientific world. The Naval Consulting Board, headed by Thomas A. Edison, and composed of members selected by the leading scientific societies of the country, has rendered noteworthy service. The lack at first of any provision in law whereby the members of the board could be compensated for expenses incurred incident to their service, which they rendered willingly and with conspicuous generosity, has been remedied by the last naval act, which appropriated $25,000 for this purpose. Congress has thus been quick to secure for the Navy the aid of outside scientists, and the approbation of the President when he declared, in view of the Navy's need of preparedness, "not for war but for defense," personally to the members of the Naval Consulting Board that "We must have the cooperation of the best brains and knowledge of the country." Of the problems presented by the Navy Department for solution, some have been solved and others are in process of investigation, especially where the question involved is one subject to continuous improvement. Reports as to the value of many inventions have been received from the Naval Consulting Board, and its work has brought the officials of the Navy into closer touch with many industries.

A notable development of the board's work is its plan for the perfection of industrial preparedness throughout the country in its organization in each State of a committee, composed of one member each from the American Society of Civil Engineers, the American Institute of Mining Engineers, the American Society of Mechanical Engineers, the American Institute of Electrical Engineers, and the American Chemical Society, to work in connection with the committee on production, organization, manufacture, and standardization of the Naval Consulting Board. With five members in each State this committee, which is called the committee on industrial preparedness, consists of a total of 240 members. The District of Columbia and the Territory of Alaska also is represented on this committee. The members of this committee have been designated as State directors of the organization for industrial preparedness, and they are associate members of the Naval Consulting Board of the United States. The directors in each State have enlisted the services of all the members of the five societies named, who are designated as field aides, and who are earnestly and energetically assisting in

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gathering information collected in the form of an industrial inventory. These blank inventories were sent confidentially through the State directors and aides to manufacturing establishments of every character throughout the entire United States, and the information thus secured in answer to questions on the blanks has been confidentially filed for the use of the Government in time of national need or crisis. This information is of such a character as will allow munitions of war to be ordered and manufactured in the most expeditious manner and delivered in the shortest possible time. The responses to these requests for industrial information have been exceedingly gratifying, and already they have received at the central office of the committee on industrial preparedness, New York City, 24,500 inventories, and it is expected that the total number will soon reach 25,000. This means that if it were ever necessary to mobilize to defend our country against foreign aggression, at least this number of concerns might, when prepared by this Government with proper gauges and drawings, be counted on at short notice to transfer the energies and machinery of industrial peace into the manufacturing of munitions of war. In other words, it means that America can never be caught off her guard with an insufficient number of shells and cartridges and other implements of defense, as was the case with some of the countries of Europe at the beginning of the present conflict.

In connection with the organization of the Naval Consulting Board, Congress was asked to provide an experimental and research laboratory so as to utilize in the fullest degree the talent and genius of the civilian scientists who responded so generously to the request for their aid. Such a laboratory was a crying need inasmuch as the experiment station at Annapolis has been overburdened with the work which it has in hand of testing coals and making photomicroscopic examinations of steel and iron, and in conducting other tests of materials used by the Navy. The naval act of this year provides for such a laboratory by appropriating $1,500,000 for its construction. This laboratory will undertake the study of such subjects as gun erosion, torpedo motive power, the gyroscope, submarine guns, protection against submarines, torpedo and mine attack, improvement in submarine attachments, improvement and development in submarine defense, storage batteries and propulsion, aeroplanes and aircraft, improvement in radio installations, and other necessary work of this kind. At the meeting of the Naval Consulting Board in the Secretary's office on September 19 the board was requested to investigate and report upon a suitable location for the establishment of this laboratory, and upon plans for its erection and work. The committee which was appointed for this purpose has already made extensive investigations regarding prospective sites, and at the next

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meeting of the whole board will report its findings, and a site will be selected as soon as possible. The act establishing the laboratory authorizes the employment of such scientific civilian assistants as may be needed. This is a marked advance in naval development, and work done in this laboratory is expected to result in the greatest value to the Navy, especially in determining the value of new inventions, improving materials, bringing new materials into use, improving products, lessening weight, and materially decreasing the cost of operation on board ship.

Council of National Defense.

In an act making appropriations for the support of the Army for the fiscal year 1917, Congress established a Council of National Defense for the coordination of industry and resources for the national security and welfare, and designates the Secretary of the Navy as a member thereof. It is contemplated that this council will eventually take over the work of industrial preparedness now being done by the Naval Consulting Board, and arrange it in such form as to be available to all departments of the Government in time of emergency. The excellent work already done by the Naval Consulting Board has been recognized by the President in the appointment of Mr. Howard A. Coffin, chairman of the committee on industrial preparedness of the Naval Consulting Board, as a member of the advisory commission nominated by the council composed of Cabinet officers. The act provides that the advisory commission be composed of seven persons, each of whom shall have special knowledge of some industry, public utility, or the development of some natural resource, or be otherwise specially qualified for the performance of duties thereinafter provided, and also provides that the special knowledge of such commission may be developed by suitable investigation, research, and inquiry, and made available for the use of the council. It is also stated that the work of the Council of National Defense will consist in the coordination of military, industrial, and commercial purposes; in the reclamation of highways, railroads, utilization of waterways, and employment of military and naval resources for defense; and the increase of domestic production of articles and material essential to the support of the population, both military and civilian, in time of national emergency.

The Governments of Guam and Samoa.

The governments of Guam and Samoa are placed under the Navy Department and a naval officer is the governor of each of these islands, possible important bases in time of war.

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In Guam, where Capt. Roy C. Smith is governor, the work of supplying the advance base outfit for the temporary defense of the island has continued.

The Asan Spring water system was connected up temporarily during the shortage in May, 1915, and has been made permanent and will be extended as fast as funds are available.

A site for the new medium power radio station near Mount Tenjo was selected and work on clearing the site and constructing a road thereto was begun.

The population of the island, including the Naval Establishment, on June 30, 1916, was 14,142, a gain of 453 during the year.

Experiments in growing cotton as a revenue-producing crop for the farmer were continued, but the unusually heavy rains in the spring resulted generally in disaster to the crop. However, a considerable quantity of cotton was produced, and the governor reports there seems to be no doubt that with proper encouragement and proper instruction the farmers and planters of Guam can produce cotton on a paying basis.

The expenditures during the year for education, exclusive of new buildings, were $7,363.95. Efforts to advance the island schoolteachers to a higher standard were continued. It is proposed to inaugurate a regular normal school for teachers and such others as can be accommodated which will embrace the common high-school branches. At present there are no secondary schools in Guam, nor sufficient personnel to inaugurate such schools. Instruction of boys in agriculture and of girls in sewing has continued. All schools generally are overcrowded and the need for additional schools in Agana is urgent.

Considerable damage was done to the crops on the northern part of the island by a typhoon on September 2.

SAMOA.

In my annual report for 1915 mention was made of a destructive hurricane which visited the Island of Manu'a in American Samoa in January of that year, devastating the coconut plantations and destroying growing crops. I am glad to be able now to report that, while, on account of the hurricane, no copra will be produced in the islands of the Manu'a group this year, and probably not for several years to come, the people of Manu'a are again self-supporting and have an ample supply of native foods. So carefully did Commander John M. Poyer, governor of Samoa, administer affairs, that of the $10,000 appropriated by Congress for their relief, a balance of $1,665.04 was turned back into the Treasury at the end of the fiscal year, and of the $2,000 donated by the American Red Cross, $878.02 was returned to that society in March, 1916.

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As a result of efforts of the Navy Department, the Oceanic Steamship Co.'s steamships now call at Tutuila on their way from Australia to the United States, and there is now a steamship each three weeks in each direction. This improvement in transportation service has resulted in a material saving to the department in the transportation of personnel and in the shipment of freight to San Francisco, and is creating an increased volume of trade between the Pacific coast and the islands of the South Sea. That the present prosperous conditions in the United States are reflected in our South Sea possessions is shown by the fact that the natives of American Samoa are receiving for their 1916 copra $108.66 per ton, the highest price in the history of the island government. There have been no epidemics during the year and health conditions are excellent. According to a recently taken census, the population of American Samoa is now 7,550.

At the Inauguration of the Emperor of Japan.

Admiral Winterhalter, the commander in chief of the Asiatic station, proceeded with the flagship from Shanghai to Kobe, Japan, just prior to the coronation of the Emperor of Japan. The admiral, with his party, landed at Kobe and proceeded to Kioto, where the coronation ceremonies were to take place. At Kioto calls were exchanged between the admiral and the Japanese and foreign officials. The admiral was received by the Emperor and was a guest of the nation throughout his stay in Japan. Upon his return to Kobe a reception was given on board the flagship for Japanese and foreign officials and indicated the commander in chief's appreciation of the courtesies which had been shown.

Chinese Flood Sufferers Aided.

In times of peace the Navy is an agency through which this country responds to the need for aid by countries in distress. The response is always instant and generous. During the present year when the first news of the flood in July, 1915, at and above Canton, China, was received, the U. S. S. *Wilmington* and a small gunboat stationed in those waters rushed to the city of Canton. The flood had come so quickly that many thousands of people were caught unawares and lost not only all their posessions but every visible means of obtaining food. As there were no other foreign vessels in those waters at that time, the task of temporarily feeding these thousands devolved upon our vessels. The commander in chief of the Asiatic Fleet (Admiral Winterhalter), who was at Shanghai at the time, arranged for a naval auxiliary and such other vessels as could be spared to take supplies, consisting principally of rice, to the stricken district. These

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supplies undoubtedly saved an enormous percentage of the people from death by starvation. The fact that it was appreciated by the Chinese is evidenced in the beautiful silver small-arms trophy which they presented to the Asiatic Fleet, and which, in accordance with the orders of the commander in chief, will be competed for annually by the ships on that station.

Service of Marines in Haiti and Santo Domingo.

In the restoration of order and the preservation of peace in the revolution-torn Republics of Haiti and Santo Domingo the Marine Corps has rendered most valuable service. This service drafted most of the personnel of the entire corps, except that portion serving aboard ships and guarding navy yards, and almost during the entire year the corps was engaged in this expeditionary work. About this time last year Col. Littleton W. T. Waller, with the First Brigade, was in occupation of Haiti. Peace was restored and the tides of island traffic again flowed through their natural channels. The effective work accomplished led to the organization, at the instance of the United States State Department, of a Haitien Constabulary, for which provision was made in the treaty between the United States and Haiti. Organized under Capt. Smedley D. Butler as commandant, this constabulary consists of 112 officers and 2,500 native Haitian gendarmes, and as Haitian citizens become qualified to serve as officers they will gradually replace the Americans. The State Department has been generous in its commendation of the work done by the Marine Corps, which was so effective that it was possible in May to withdraw a large part of the force and transfer it to Santo Domingo, where a revolution had broken out. Since that time Santo Domingo has been occupied by the Marine Corps, the Fourth Regiment having been drawn from San Diego, Cal., to assist in the work of pacification. Owing to the conditions existing in the interior of Santo Domingo, it became necessary in June to send a column to Santiago and other towns in that vicinity. This column, although opposed by forces of considerable strength, carried out its mission in a most expeditious and effective manner.

The column was about 850 men strong and the advance was made both by the road from Monte Cristi and by the railroad from Puerta Plata to Santiago. All of its operations were under the command of Col. Joseph H. Pendleton. A somewhat serious resistance was met with from the revolutionists at Las Trencheras, a well-recognized Dominican stronghold, and believed by the people to be impregnable. It included two well-intrenched hills rising about 75 feet above the road and dominating the surrounding country. The action lasted only three-fourths of an hour from the opening of the

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artillery fire, under which the infantry and machine guns deployed and moved forward through the underbrush. The heavy fire which was encountered became wild and ceased to do any damage as soon as the machine guns opened fire. Climbing the steep embankment of the trenches, the infantry captured the first line of trenches at the point of the bayonet, the revolutionists retiring to their second line, out of which they were easily driven. In this engagement Pvt. John J. Awkerman, of the Twenty-seventh Company, was killed and four other privates were wounded. Continuing the advance through the country over a bad road, it was found necessary to repair the bridges, all of which had been destroyed by the retiring revolutionists, and the advance was marked by frequent skirmishes and culminated in a sharp engagement at Dona Antonia Alta, in which Pvt. Kleme Millis, of the Thirty-first Company, was killed. On account of bad roads and for other reasons, on June 30 communication was cut with Monte Cristi and the expeditionary force moved out as a flying column until communication could be established with Puerta Plata by rail. On July 3 there was another encounter at the town of Guayacanas. During this sharp engagement Corp. Glowin, in charge of one of the guns, was shot, but continued to fire until hit a second time, and it was necessary to drag him back into the woods. Two of the machine guns in action jammed. At this moment First Sergt. Winans arrived with an additional machine gun, which also jammed, but he coolly stood up and remedied the defect. With the arrival of other guns and the infantry, the revolutionists' fire was held in check and the infantry charged and occupied the trenches. For their conspicuous gallantry in this engagement, First Sergt. Winans and Corp. Glowin were awarded medals of honor by the department.

Arriving at Navarrette on the 4th of July, the column formed a junction with the railroad column which had advanced from Puerta Plata, first under the command of Capt. Eugene P. Fortson, who was later relieved by Maj. Hiram I. Bearss. The work of these two officers had been very highly praised by the colonel commanding. Working with a comparatively weak force, they had advanced along the railroad, driving the revolutionists back, and securing for the main body the line of communication which was essential to it since it had severed its own line. In official reports these officers are commended for their "spirit of initiative, courage, and zeal, combined with good discipline, which made all difficulties surmountable." In 10 days the column had marched a distance of 75 miles, cleared northern Santo Domingo of revolutionists, and peacefully entered the city of Santiago, the seat of the revolutionary movement. All military operations since August, 1915, were successfully carried out with comparatively small loss of life. Only one officer and six men were

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killed in the many engagements incident to the pacification of these countries. In addition to the casualties already mentioned, Capt. Herbert J. Hirshinger lost his life while fearlessly commanding a landing force at Puerta Plata on June 1, and Corpl. George Frazee was killed at Guayacanas on the same day. In Haiti Sergt. John Platt lost his life at Petite Riviere, September 25, 1915, and Sergt. Edward C. Thompson near Jeremie two days later, while Pvt. Peter Kulick was killed at Acul Samedi July 10, 1916.

Rescue Work in California.

During the year high commendation, well deserved, was given to a detachment of officers and men who cooperated with a naval detachment from the Pacific Reserve Fleet in the rescue work incident to the flooding of the Otay and Tia Juana districts near San Diego last February.

National Defense Secrets.

The bill designed to prevent the disclosure of national defense secrets which was revised by a joint board of representatives of the Department of Justice, War Department, and the Navy Department was recommended for passage at the last session of Congress. The enactment of the draft recommended is considered urgently necessary as a step in the preparation of war.

MUCH YET REMAINS TO BE DONE:

In presenting this annual report, which shows what is admitted not only by the most exacting critics in our own country but by all of the naval experts abroad—the greatest year of progress in ships, matériel, and organization that the United States Navy has ever known—I feel it my duty to warn as solemnly as I may against the danger that lies in a possible feeling on the part of our people that the Navy has now been attended to, has been placed where it belongs among the great navies of the world, and that there is nothing further to be done.

COMPLACENCY THE FATHER OF DRY ROT.

Complacent retrospection of past achievement is the father of dry rot. We have made a magnificent beginning, but it must not be forgotten by the public that the same intelligent appreciation of our needs, the same willingness to provide for these needs, must be shown by the people as represented in Congress this year and the year to come, and the year after that, and, in fact, every succeeding year, if we are to finish what we have commenced. Until the great navy-building countries make a practical agreement to a reduction of armament our country must steadily increase its naval strength.

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BIG PROGRAM STILL TO BE EXECUTED.

Our people are now interested in the Navy as they never were before. They are more familiar with our shortcomings and with our good points than they have ever been before. I beg them to keep this personal interest in the service, to query as to what we are doing, to criticize frankly whenever they feel there is room for criticism, and, above all things, never to relax into that state of complacent and smug satisfaction in our naval establishment that existed five years ago. Let us not forget that, while Congress has authorized the most splendid program of shipbuilding in the history of our Navy, it is still to be executed and that the very prosperity of our country has brought the Navy Department face to face with tremendous problems regarding the construction of these ships; that contractors for materials are stating times of delivery in years instead of months; that labor, busily employed all over the country, is hard to get at any price; that we are handicapped by years of long stagnation in American shipbuilding, with a lack of facilities for construction as compared with other powers.

OUR NAVY MUST NOT BE SURPASSED IN EFFICIENCY.

It has never been suggested seriously that our Nation should attempt to equal in the number of ships the greatest navy in the world. There is no reason whatever, however, why we can not only equal but surpass in the military efficiency of our organization that navy or any other navy on earth.

THE PROBLEM OF RECRUITING.

We have provided for a great increase in the personnel, which must be still further increased as new construction of ships demands additional force to man them. Here again lie new and serious problems. With every manufacturer bidding hitherto unheard-of prices for labor, with every farmer and every storekeeper equally anxious to secure their services, more than ordinary methods must be used to persuade the young men of our country to decline the countless opportunities opening before them in commercial life in favor of service with the Government. Were it not for the gratifying results in enlistments already shown, as a result of the policy of the last few years of offering educational advantages, particularly along technical lines, to our recruits, I would feel indeed that the problem of securing the men authorized for our fleets was an almost hopeless one. As it is, I feel sure it will be solved, but it is still a problem, and what I desire in this report is to warn the public against considering that the mere passage of laws authorizing additional men is equivalent to having these men actually on board our ships.

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DIFFICULTIES IN RAPID CONSTRUCTION.

I have already spoken of our difficulties in the rapid construction of new ships. The much-debated question of the past as to the policy of encouraging the industrial activities of our navy yards, and whether or not we should construct any considerable portion of the ships authorized, is no longer a question. The paramount necessity of utilizing all of our own facilities, in order to relieve the burdens thrown upon builders and manufacturers already booked years ahead with orders, admits of no dispute. It may be necessary to ask, from time to time, for appropriations to provide our yards with the facilities they require. I hope such requests, if made, will be granted with the same intelligent appreciation of their necessity as followed our requests for the authorization of new ships last year. Our people can rest assured that no money will be asked for these purposes unless it is certain that, as a mere business proposition, it will result in a decrease rather than an increase of the charge upon the taxpayer.

A TRIBUNAL TO END COMPETITIVE ARMAMENTS.

The cost of building and maintaining a navy has steadily increased. The total appropriation made for our Navy in 1900 was $61,140,916.67; it had grown to $128,908,196.96 in 1912; the appropriations made in 1916 aggregate $312,678,071.54. If to this be added the total cost of the three-year program authorized, the figures go up to half a billion dollars for new construction alone, not including the additional cost for men and officers, munitions, and operation. The expenditures by other big navy-building countries mount up into the billions. How high they have reached during the pressure of the great war in Europe we can not estimate. Are the great nations to continue this competition in naval increase? How long before the burden will be greater than the people can bear? The plain duty of this country is to build a Navy large enough to defend its extended coasts and protect American rights. In comparison with those countries which have been engaged in recent wars this country is rich enough to build a Navy as large as its authorities may determine may be needed. But the Congress, which in August of this year appropriated more to increase the Navy than any nation had hitherto appropriated in one year, expressly declared that it looked "with apprehension and disfavor upon a general increase in armament throughout the world." It wisely recognized "that no single nation can disarm, and that without a common agreement upon the subject every considerable power must maintain a relative standing in military strength." After laying down this sound premise, Congress "authorized and requested the President to invite, at an appropriate

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time, not later than the close of the war in Europe, all the great governments of the world to send representatives to a conference which shall be charged with the duty of formulating a plan for a court of arbitration or other tribunal, to which disputed questions between nations shall be referred for adjudication and peaceful settlement." The act goes on to provide if "peaceful determinations of all international disputes shall render unnecessary the maintenance of competitive armaments, * * * such naval expenditures as may be inconsistent with the engagements made in the establishment of such tribunal or tribunals may be suspended when so ordered by the President of the United States."

It is believed this is the only defense appropriation bill ever enacted which gave authority to the Executive to suspend the expenditures authorized if the navy-building nations can reach an agreement by which international disputes may be settled without recourse to force. It marks a new departure, for suggestions of arbitration have not before come in bills appropriating money for an increase in fighting strength. In my reports of 1913, 1914, and 1915 I advocated an international conference between big-navy countries looking to an ending of the competition in building fighting craft. I earnestly hope the time is not far distant when this act of Congress will result in such agreement, and that the nations of the earth will have the statesmanship to devise effective means of preserving the world's peace without constantly building ever-increasing dreadnaughts at ever-increasing costs. Until that hour arrives the United States can not safely adopt any policy other than that of continuing steadily to increase its naval strength. It is gratifying that our biggest and best naval bill carries the hope of ending the race between nations for the construction of ships of war.

WE MUST GO FORWARD.

Of the achievements of the past year, this report shows under their proper heads, in detail, what has been done. It is a record which we may well look upon with pride, even with satisfaction. My most earnest hope is that this pride and this satisfaction will not make us slothful or indifferent. We have begun to march forward. We must not halt by the wayside.

JOSEPHUS DANIELS.

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REPORT OF THE CHIEF OF THE BUREAU OF NAVIGATION.

NAVY DEPARTMENT,
BUREAU OF NAVIGATION,
Washington, D. C., October 10, 1916.

From: Chief of Bureau of Navigation.
To: The Secretary of the Navy.
Subject: Annual report for fiscal year 1916, with additions to October 1, 1916.

Appreciation of the immediate needs of the service has been shown to be nation wide, and in the recent naval appropriation bill Congress carried out the wishes of the people by enacting legislation of far-reaching importance. This includes a provision for an immediate "authorized enlisted strength" of 68,700 men and 6,000 apprentice seamen, a total of 74,700. Preparation for the future was not neglected and the same bill authorized the President, in emergency, to increase the "authorized enlisted strength" to 87,000. It is evident that Congress considered the present needs of the naval service in deciding on this number at this time, as the usual additional allowance of apprentice seamen, 6,000, would provide for an actual enlisted strength of the regular Navy of 93,000.

It is interesting to note that the above figure closely approximates the bureau's preliminary estimate of 93,957, which provides for the number of enlisted men (including average sick allowance) necessary to fill the billets in 1921, the year of completion of almost all of the present program. From 5 to 10 per cent should be added to this for increased complements and working surplus, and the "authorized enlisted strength" should be increased to this number in time for the necessary recruiting and training.

In addition, Congress considered it necessary to have a large number of reserves at comparatively small expense during peace time, and provided the machinery for enrolling and instructing this force. Its value can not be overestimated as there are thousands of important billets on reserve ships, on merchant vessels to be taken over, and in connection with naval activities afloat and ashore, which require additional trained personnel in war time. The preliminary estimate for 1921 for enlisted reserves of all classes, including retired personnel and a considerable force of naval militia, is 43,978, and steps have been taken to enroll this force.

In order to fix a reference date the bureau has made its computations as of July 1 of that year, allowing for the required number of vessels with reserve complements on that date, but has not allowed for any vessels which may be authorized after August 29, 1916.

The material increase provided in the bill doubles the strength of the Navy's fighting force and the provisions of the law are such that we may expect the entire program to be completed in 1921, with the possible exception of one or two vessels. It is therefore the duty of this bureau to take such steps as are now necessary to provide for and educate the officers and men needed to man these additional vessels, and to perform such other naval duties as the department requires for an efficient organization of the naval forces.

In the last annual report it was estimated that 7,500 men would be required by July 1, 1917, and that 4,329 additional would be

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required by July 1, 1918, for ships authorized prior to the large increase provided in the recent bill. The bureau then called attention to the great shortage of officers necessary for ships already authorized, and Congress responded immediately by increasing the appointments to the Naval Academy. At that time, however, the large material increase had not been considered by Congress and the estimate was not based on the comprehensive program adopted on August 29, 1916. For this reason, further action is now necessary to make the completed program a live one.

Due to the foresight of Congress a continuing program has been provided, and it is necessary to make an estimate of the commissioned personnel needs for the probable date of completion of that program. It is the first time in the history of the Navy that such a step has been possible, as programs have been made only from year to year.

The preliminary estimate shows that there will be needed on July 1, 1921, 4,487 commissioned line officers on the active list to man the ships and a small number of important shore stations, and, if emergency arises, the complements of reserve ships, coast defense vessels, harbor patrols, mining vessels, censorship stations, etc., will require, in addition, the services of reserve officers to the number of about 2,378.

The above estimates, based on the present authorized building program, show that the percentage of officers to men would be about 4.8 (.0477+), and the result of careful consideration of the numbers in grade required to perform the duties is as follows:

	Flag.	Captains.	Commanders.	Lieutenant commanders.	Lieutenants.	Junior lieutenants and ensigns.	Total for all grades.
Estimate of number of officers required in each grade	46	166	341	731	1,430	1,773	4,487
Distribution of estimated total number, if assigned to grades in accordance with present law	45 (1%)	179 (4%)	314 (7%)	628 (14%)	1,458 (32½%)	1,863 (41½%)	4,487

If the policy to fill up the construction corps, civil engineer corps, and Marine Corps from the line is continued (which is recommended), additional officers will be required for these assignments. A further allowance should be made for aviation, transfers, increased complements, and for filling such vacancies as may arise due to age in grade retirement, a total of from 5 to 10 per cent.

Every naval activity is directly dependent on the numbers of the trained commissioned personnel. Ships must be manned, men must be recruited and trained, officers must be trained, and the inspection and preparation of valuable Government material must be made. From the last Naval Academy class of 177 graduates, and from officers advanced from warrant rank to ensign, there was a net gain to the line of the Navy of but 103, due to retirements, resignations, details to the various corps, etc. It is estimated that, from now until July 1, 1921, there will be a net gain of about 986 officers added to the service from the Naval Academy, about 45 advanced from warrant officers, and not more than 60 additional officers from those trained for engineering duty only. The present number in service is 2,086, exclusive

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of 34 extra numbers. The number on July 1, 1921, will be about 3,177, leaving the Navy short about 1,310 officers on that date (exclusive of those mentioned in the preceding paragraph) provided no further action is taken now.

The value of the material for which Congress has appropriated is so great that its operation, care and upkeep must be in the hands of skillful officers, and this is the first opportunity since the building program was decided on, to outline the steps necessary to obtain them. The output of the Naval Academy should be doubled for a limited period, returning to normal conditions when the shortage of officers has been made up. In order to accommodate additional midshipmen the superintendent has submitted estimates for temporary buildings which can be rapidly constructed and which will accord with the present style of architecture.

The bureau recommends that the appointments allowed each Senator and each Member of the House of Representatives be increased, that the course at the Naval Academy be reduced to three years until the shortage is made up, and that the present first class be graduated on February 1, 1917. This step is of primary importance in order to properly meet the wishes of Congress to provide an efficient first arm of defense, as expressed in the large program provided in the recent bill.

ADMIRAL AND VICE ADMIRAL.

It is recommended that these officers when retired retain the rank and title they held while discharging the important duties for which the department selected them in recognition of their exceptional ability.

NAVAL DISTRICTS.

The department has recently authorized the establishment of naval districts to control naval activities along the coast. This is one of the many important steps in organization, and when the estimates of the personnel necessary to operate these districts are made, the bureau will make assignments to take up the detailed work of organization.

PERSONNEL LEGISLATION.

The recent appropriation bill contains personnel legislation of far-reaching importance. It refers its computations for all corps to the number of commissioned officers of the line (exclusive of commissioned warrant officers), and fixes this number at 4 per cent of the authorized enlisted personnel, or 2,988. The above officers of the line are further apportioned in the various grades on a percentage basis, with a provision that junior lieutenants must have three years service in grade before being eligible for promotion. The principle of selection for promotion of captains, commanders, and lieutenant commanders to the next higher grade is applied to line officers who have had four years' service, and a board of nine rear admirals is provided to make the selections during the month of December of each year. On and after June 30, 1920, an officer to be eligible for selection must have had two years actual sea service on seagoing ships in the grade from which he is to be selected, and must not be more than 45 years of age if a lieutenant commander, 50 years of age if a commander, and 56 years of age if a captain. This latter provision will

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operate to provide rear-admirals with at least eight years in grade, and when the law has been in operation for a considerable period the average service in grade of captains and commanders will be six and five years, respectively. The retiring age is increased to 64 years.

The numbers of the Staff Corps are percentages of the line of the Navy, and they are further assigned within the corps with certain proportionate numbers in each grade. The principle of selection was not applied to the Staff Corps.

The corps of professor of mathematics will cease to exist upon the death, resignation or dismissal of officers now carried on the lists of that corps.

There is provision for one chaplain for each 1,250 persons in the Navy and one dental surgeon for each 1,000 authorized enlisted men in the Navy and Marine Corps.

A Dental Reserve Corps was also authorized.

Legislation favorable to the warrant officers was also enacted, together with heat and light allowances and leave with full pay.

Provision was made for the assignment to engineering duty only of certain officers not below the grade of lieutenant, and the Secretary was also authorized to appoint annually for a period of 10 years 30 acting ensigns for engineering duty only, selected by competitive examination from technical schools and colleges of high standing and given a probationary period of three years in which to qualify. The date for the first examination has been fixed, and the Civil Service Commission has been requested to hold the examination under the same rules as now obtain for candidates for the Naval Academy.

A Naval Flying Corps was provided for and the bureau has taken steps toward its organization.

One of the most important items in the bill was the establishment of a Naval Reserve Force, and the retainer pay was made sufficient to attract a large number of men to the reserve. The force will consist of a fleet naval reserve, composed of honorably discharged enlisted men and of former officers of the Navy; a naval reserve selected from the seagoing profession; an auxiliary reserve from those employed on American vessels of the merchant marine of suitable type; and a coast-defense reserve. There is also a volunteer reserve composed of members who volunteer to serve in time of peace without retainer pay. The organization of this force is well under way and officers have been assigned to duties in connection with the new work that will be undertaken by the bureau to enroll, train, and assign this force.

A Reserve Flying Corps was also provided and is to be composed of officers and men transferred from the Naval Flying Corps.

The rating of coal passer was changed to fireman third class and ordinary seaman to seaman second class. Printers received advancement in rating, the rating of storekeeper was established, and Hospital Corps men have been given ratings similar to those of the seaman branch.

Presidential appointments to the Naval Academy were increased from 10 to 15 and the appointments of enlisted men by the Secretary increased from 15 to 25.

The bill provides that any person who may hereafter enlist in the Navy for the first time shall, if he so desires, receive discharge during

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the months of June or December, respectively, following the completion of one year's service at sea. The granting of indefinite leave takes the place of discharge by purchase.

Employment of retired officers.—In order that the bureau may take advantage of the service of a few able retired officers, especially during periods of shortage of personnel, it is recommended that the department be authorized to employ retired officers, without restriction, and when so employed on active service that they be given the pay and allowances of their grade.

POSTGRADUATE COURSES.

The bureau has continued the postgraduate courses, which include the course at War College, courses in engineering, ordnance, civil engineering, naval construction, and law, and a torpedo course on the *Montana*. There is also an aeronautic school at Pensacola and a submarine school at New London.

Officers of the active list of the Navy, Sept. 1, 1916.

[Line officers includes all extra numbers and officers restricted by law to the performance of engineering duty only.]

	Line	Warrant.	Medical	Acting assistant surgeons.	Medical Reserve.	Pay	Civil Engineers	Dental.	Naval Constructors.	Professors of mathematics.	Chaplains.
1. Sea duty	[1] 1,463	519	136	....	....	111	....	10	2	....	22
2. Shore duty beyond seas, including attachés	33	30	41	....	....	15	8	5	2	....	....
3. Training station, Naval Academy, War College Staff, receiving ships	130	44	30	....	....	16	1	5	....	8	9
4. War College, post-graduate courses	[2] 97	.....	.....	.....	.....	.....	1	....	5	....	....
5. Sick and waiting orders	38	16	13	....	....	7	1	1	....	....	....
6. Shore duty other than 3 and 4	361	250	120	25	39	79	29	10	71	8	9
Total	2,122	859	330	25	39	228	40	31	80	16	40
Percentage actually at sea	69	64	41	....	....	49	....	30	1	....	55

[1] Includes line officers afloat under instructions in aviation, submarines, and torpedoes.
[2] Includes line officers under instruction for Construction Corps.
[3] Includes line officers ashore under instruction in aviation and duty in connection with radio.

NAVAL ACADEMY.

The seventy-second academic year of the Naval Academy opened on October 1, 1916, with 1,230 midshipmen—by far the largest number in the history of the academy. The new fourth class has 625 members. By reassignment of rooms in Bancroft Hall and building several new rooms therein, accommodations have been arranged for 1,240 midshipmen, the maximum number that could be accommodated. It was necessary to increase the recitation rooms, commissary department, laundry, and certain laboratory equipment in order to meet the increased demands; but all of this work was accomplished during the summer months.

Owing to the fact that no additional officers were available for assignment to the academy, it became necessary to employ about 43 additional civilian instructors for the departments of mathematics, English, and modern languages, this having been authorized by the naval appropriation bill approved August 29, 1916.

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While the three upper classes were at sea on the practice cruise, the new fourth classmen were given extensive drills, setting up, rifle practice, and practical work in the machine shops, so that they were in fine condition for joining the regiment and beginning their academic work.

ENLISTED FORCE.

During the fiscal year ending June 30, 1916, the complement of enlisted men was maintained at the strength allowed by law.

Unusual demands were made upon the enlisted personnel, owing to the completion of new vessels, viz, 3 superdreadnaughts—the *Oklahoma*, *Nevada*, and *Pennsylvania*—10 destroyers, and 3 submarines, and the increase of the complement of the vessels of the reserve force to 40 per cent of their active complement.

The department has adhered to the policy of refusing to take back men who have been discharged as undesirable, for bad conduct, or with dishonorable discharges. This policy raises the standard of the enlisted force and has had a beneficial effect upon the men themselves, who appreciate the fact that the Navy is not a refuge for men of bad character or men who deliberately violate the discipline of the ship

The transfer of a considerable number of chief petty officers to the fleet naval reserve after 16 to 20 years' service will create vacancies which, together with the increase in the personnel allowed by law, will greatly increase promotions for the men in lower ratings.

SERVICE TRADE SCHOOLS.

Labor conditions throughout the country have produced an extraordinary demand for skilled artisans. For this reason, few enlistments comparatively were made in the artificer ratings. This condition resulted in the necessity for increasing the number of men detailed to the various service trade schools. The figures show that during the fiscal year 3,500 men were under instruction at the various trade schools as compared with 2,278 of the previous fiscal year. Of these, 1,564 completed their courses and were detailed to active duty as against 1,302 the year before. There were, on June 30, 1916, 1,420 men under instruction at the several schools. All the schools previously maintained were continued and in addition the following schools were established: A school for deep-sea diving at Newport (eight-months' course); a class at the machinists mates' school at Charleston for the instruction of men in the care and operation of gas engines (a three-months' course).

A school for the instruction of enlisted men in aeronautics was established at the naval aeronautic station, Pensacola, the first class being assembled January 1, 1916; the classes consist of 16 enlisted men of the Navy and are organized every three months. The course of instruction is 18 months.

Steps have also been taken for the reestablishment of the seamen gunners' school at the navy yard, Washington, D. C. This school, which will be underway about January 1, 1917, will have a course of six months and will instruct men in ordnance mechanism, electricity, etc.

Schools have also been established on board repair ships and tenders of the Atlantic Fleet for the instruction of machinists and other men of artificer ratings. This instruction is in addition to the courses in the trade schools ashore.

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TRAINING STATIONS.

The following letter from Mr. John E. Harrington, No. 91 Walter Street, Bangor, Me., addressed to the commanding officer, naval training station, Newport, R. I., under date of September 26, 1916, is one of many received at San Francisco, Great Lakes, Newport, and Norfolk.

My son, Edmund J. Harrington, arrived home this forenoon on furlough after completing his course at naval station, and I wish to express to you and all other officers my sincere thanks for the splendid rudiments of manhood which you have taught him. I consider him improved 100 per cent from the day he left me two months ago, in every way—physically, mentally, and especially in discipline—and I wish that many more parents might know the advantages derived both for themselves and their boys, and I feel if such could be we would have a great many more enthusiastic, patriotic citizens in America to-day, and in closing will say if encouragement from me is all my boy needs to make good I am sure he will succeed.

Once again thanking you, I am, respectfully, yours,

JOHN E. HARRINGTON.

P. S.—I would gladly have you use this letter to encourage anyone in doubt about the service.

J. E. H.

RECRUITING.

The conditions for recruiting are unfavorable at present, and unusual steps are necessary to enlist the quota of men. The labor market, due to the European war, offers extraordinary wages for unskilled labor. These prices will, of course, be discontinued shortly after the conclusion of peace, and the men will be laid off, but for the present the high wages are alluring to the possible recruit.

A recommendation of vital importance in connection with recruiting has already been sent to the department through the Office of Naval Operations. It has to do with the contentment of the enlisted men and the fulfillment of their wish to see something of other ports outside the United States. It is recommended that a cruise be made by the fleet to neutral West Indian ports, to the Panama Canal, and to United States Gulf ports annually until such time as international conditions will make more extended cruises desirable.

There is at present a shortage of officers in recruiting stations, but it is proposed to increase the number of officers and stations and to use low-priced automobiles to spread the knowledge of the advantages of the service to the districts remote from railway lines and to bring in recruits.

It is urgently recommended that the use of motor-propelled passenger-carrying vehicles be authorized at each recruiting station for this official use only.

NAVAL AUXILIARY SERVICE.

At the end of the fiscal year June 30, 1916, 19 vessels of the Naval Auxiliary Service, including the hospital ship *Solace*, were manned exclusively by merchant complements. The personnel of this service consists of approximately 212 officers and 1,034 men. All the officers are American citizens, and it is gratifying to state that, in spite of the difficulty of obtaining men in the merchant service, the order issued about two years ago with a view of Americanizing the crews of the vessels of the Naval Auxiliary Service has produced good

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results, and the percentage of American citizens in the enlisted personnel has materially increased. It is expected that when the Naval Auxiliary Reserve, created by the act of August 29, 1916, is put into operation the entire enlisted personnel will be American citizens.

During the fiscal year the vessels of the Naval Auxiliary Service manned by merchant complements steamed a total of 400,144 miles, delivered 474,954 tons of coal, 605,378 barrels of oil, 393,974 gallons of gasoline, 88,220,185 pounds of miscellaneous cargo, and transported 3,374 passengers to the various vessels and naval stations all over the world.

The value of this service to the Navy was fully demonstrated during the past year when, owing to the abnormal conditions existing in merchant shipping and the almost exorbitant freight rates demanded for transportation of cargo, the vessels of the Navy and naval stations in all parts of the world were kept fully supplied with fuel and stores at a reasonable cost to the Government, thus effecting a great saving in money, as well as maintaining the efficiency of the Naval Establishment, which would have been sorely crippled without this essential and efficient arm of the service.

Great difficulty has been experienced during the past year in keeping experienced and efficient officers and men in this service, and almost daily resignations were requested by officers of the deck and engineering departments, as well as from the men, in order to enable them to accept employment elsewhere in the merchant marine at much higher rates of pay, with the consequent result that there has been an almost incessant change in the personnel of officers. This condition was brought about by the passage of the seamen's bill and also, in a large measure, by the great number of vessels of the merchant marine that have been placed in service since the European war.

In order to remedy this condition, the department was compelled to increase the pay of every officer and man employed in the Naval Auxiliary Service (with the exception of the masters), resulting in an additional expense of $119,460 per annum, this increase being placed into effect on July 1, 1916.

While this increase is still below the maximum scale of wages paid elsewhere in the merchant marine, it is believed the additional retainer pay allowed the officers and men for enrollment in the Naval Auxiliary Reserve will bring sufficient personnel to the service.

NAVAL MILITIA.

The Naval Militia has made notable progress during the past year. On July 1 the Organized Militia of the several States numbered 636 officers and 9,170 men. This is an increase of about 10 per cent in the year.

The department was enabled to detail nine battleships and cruisers in reserve to take militiamen for a two weeks' cruise. The reports of the commanding officers of these ships indicate clearly that the Naval Militia is a most valuable asset to the Navy, forming as it does the source from which a large part of the necessary reserve for expansion in time of emergency or threatened war may be obtained. The personnel of the Naval Militia is composed of volunteers who devote a large part of their leisure to fit themselves for use to their country in time of need. Naturally men of such impulses are zealous, intelligent, and patriotic.

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A drawback to the training of the Naval Militia in the past has been due to a shortage of officers available for the duties of inspection and instruction. This is gradually being overcome by utilizing ships in reserve and retired officers of the Navy for such training and inspection. There are at present nine ships in reserve detailed for duty in connection with training the Naval Militia, and this number will be increased as more vessels become available. Thirteen officers are detailed as inspectors and instructors with no other duties; in addition there are 42 officers who have additional duty with the Naval Militia.

NATIONAL NAVAL VOLUNTEERS.

The naval act of August 29, 1916, provided for a force, to be at the disposition of the President, for use in addition to the regular Navy, in any emergency and actual war. The National Naval Volunteers will be a force of volunteers, qualified physically and professionally as the department may prescribe, immediately available for expansion of the Navy in time of emergency or threatened war. The Congress provided liberal retainer pay for the National Naval Volunteers and the department has every reason to believe that within a reasonable time the entire Naval Militia will volunteer and be incorporated in the National Naval Volunteers.

The continued generous support of the Naval Militia and the National Naval Volunteers by the Government is amply justified by the attendant results in the increasing efficiency of the Naval Militia.

NAVAL RESERVE FORCE.

Among other important and progressive features of the naval act approved August 29, 1916, was the creation of the Naval Reserve Force. A well-trained, efficient, and large reserve for the Navy has for many years been an urgent necessity. Legislation has been enacted that will, in the shortest possible time, provide the Navy with a proper and adequate reserve. This legislation provides for a naval reserve force which will embrace all former officers and men of the Navy who are now in civil life; officers and men of the merchant marine, including those on the ships of the merchant marine that will be taken over by the Navy in time of war or emergency; those civilians who may be capable of performing useful service to the Navy in connection with the defense of the coast, such as service on or with coast-defense vessels, mining vessels, patrol vessels, or as radio operators and aviators. Provision is made for a liberal retainer pay for all classes of reserves. An important and valuable provision is to the effect that enlisted men of the Navy after 16 or 20 years of service may transfer from the active list to the reserve, and these are given appropriate pay to retain their services until they are no longer needed by the Government.

It has been estimated that there are now in the country more than 20,000 officers and men who have been trained in the Navy and have gone into civil life. It is expected that most of those trained and efficient officers and men will volunteer for enrollment in the Naval Reserve Force.

CIVILIAN TRAINING CRUISE.

The department authorized a naval training cruise for civilians which began August 15, 1916, and lasted until September 9, 1916,

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the last week of which was devoted to the mobilization of civilian-owned motor boats.

The object of the cruise was to help equip properly qualified men to act as reserves in time of war or national emergency by giving them a course of training on war ships under naval officers and naval discipline; to afford to civilians an opportunity to gain some experience and understanding which will help them to perceive the way they may best fit themselves for service in the Navy in time of need, to foster a patriotic spirit, and give to civilians some knowledge of the Navy and the naval requirements of the country.

Nine ships of the reserve force were detailed for this duty on the Atlantic coast and two on the Pacific coast, and the civilians were embarked at the following ports: Portland, Me., Boston, Mass., Newport, R. I., New York, N. Y., Philadelphia, Pa., Baltimore, Md., Norfolk, Va., Charleston, S. C., Seattle, Wash., Astoria, Oreg., San Francisco, Cal., San Pedro, Cal., and San Diego, Cal. One thousand eight hundred and thirty-one embarked on the Atlantic coast and ninety-seven on the Pacific.

These recruits represented the highest type of professional and business young men of the country, and almost without an exception they left the cruise in excellent health, the best of spirits, ardent friends of the Navy, and advocates for preparedness; and if for no other reason the department considers this cruise a success. It is realized that the experience gained and the knowledge absorbed by these volunteers on their first cruise will not qualify them for service with the Navy, but it is hoped that they will take advantage of future cruises and qualify for the volunteer naval reserve.

MOTOR BOATS FOR NAVAL DISTRICTS.

The organization of motor boats conforms to the organization of the naval districts. For the purpose of inspection and classification of motor boats a permanent board of two officers was appointed in certain naval districts under the direct supervision of the respective commandants and with additional duties under the Board of Inspection and Survey. No boat was permitted to participate in the last week of the cruise unless it had previously been inspected by the board, and 54 boats reported for mobilization: Nine at Cape May, 18 at Boston, 12 at Newport, and 15 at New York. These boats were exercised at maneuvering, signalling, searching for submarines, guarding battleships against submarine and destroyer attacks, and given instructions in the defense of their respective naval districts.

HYDROGRAPHIC OFFICE.

The Hydrographic Office during the last fiscal year provided the Navy and merchant marine with accurate charts and sailing directions covering the seas of the entire world and rendered these services independent of foreign sources. Four surveying vessels are engaged in executing important surveys of the Caribbean Sea under the supervision of the Hydrographic Office, and four less extensive surveys are being pursued in other waters.

In addition to its chief purpose of conducting marine surveys and preparing navigator's charts and nautical books, the Hydrographic Office is conducting a very extended service of gathering marine data

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from all the oceans and disseminating information of the highest value to navigators. The agencies employed for this purpose consist of its branch offices, of which there are 16 located at the chief harbors on the seaboard and the Great Lakes, voluntary contributions from shipmasters of all maritime nations, reports from American consular officers, and official data furnished by our own and foreign governmental agencies.

Thus there flows into the department a large stream of nautical information for the refreshment of the charts and books and for dissemination at once by means of suitable periodicals or by radio if urgent. The periodicals consist of a daily memorandum, a weekly bulletin, a weekly notice to mariners, four monthly and two quarterly pilot charts. These cover all the oceans and their circulation for the year amounted to a total of more than a million copies (1,101,464). Shipping has been notified from day to day of the location of icebergs and other damages to navigation.

No less activity was displayed in the preparation of charts and books for the use of the Navy, other public services, and the mercantile marine, as the statute directs; in fact, the year has been a record making one in that respect. This is the more gratifying when it is remembered that it has been accomplished without increase of appropriations. The condition that has to be met is this: All the great maritime nations of Europe have either stopped or greatly restricted the sale of their official charts and nautical books, and this has greatly increased the demand on the United States Hydrographic Office. Thus, after supplying official demands, which also are growing from year to year, the sales since the opening of the European war have been as follows:

Year.	Books.	Charts.
1914	3,436	22,955
1915	5,259	39,997
1916	7,203	52,666
Present rate	13,000	60,000

Although the personnel has not been increased for several years, the office has produced during the year 197 new charts, of which 9 were engraved and 188 were photozincographed. Nineteen new copper-plate chart engravings were finished during the year; 41 chart copper plates were extensively improved by the incorporation of new surveys and other important data, and 788 copper plates received minor amendments. The number of navigational charts printed during the year and delivered for sale and distribution was 172,104. Pilot charts were also printed and delivered as follows: 80,573 of the North Atlantic, 41,988 of the North Pacific, 25,910 of the Indian Ocean, 48,566 of the Central American waters, 10,665 of the South Atlantic, and 9,445 of the South Pacific Ocean.

NAVAL OBSERVATORY.

With increased and increasing speed of our warships, increased fighting ranges, and the continuing development of submarines and aircraft has come the necessity for new and more rapid methods of navigation and plotting, which the Naval Observatory has met by

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encouraging suggestions, aiding in the development of methods and instruments, making trial of all such as give promise of usefulness and furnishing to the service those that have proved of value.

The usefulness to navigation and to the country in general of the daily time service has been added to by the installation of two up-to-date transmitting clocks and arrangements for checking the actual emission of the radio time signals which are now received throughout the country and the contiguous oceans for several thousand miles.

The routine astronomical work of the observatory for keeping track of the heavenly bodies has been kept up, a photographic zenith tube telescope for determining the variation of latitude added to the plant, and the photographic work extended.

The 1916 Nautical Almanac contains improvements and additions over previous issues, and tables have been gotten out to add the times of sunrise and sunset and moonrise and moonset in future editions.

NAVAL HOME.

There are at present 123 beneficiaries in the United States Naval Home. Applications for admission to the home are more numerous than formerly owing to the fact that 20 years' service in the Navy or Marine Corps is no longer required by the regulations. Enlisted men may now be admitted to its benefits under the following classification:

(*a*) Discharged enlisted men of the Navy or Marine Corps who have served in the Mexican War, the Civil War, the War with Spain, the Philippine insurrection, or any other service where the armed forces of the United States have been employed, and their lives hazarded in military operations, and who are, by reason of wounds, sickness, old age, or other disability, unable to support themselves by manual labor.

(*b*) Discharged enlisted men of the Navy or Marine Corps who have become disqualified for further service by wounds, or injuries received, or by disease contracted in the service in the line of duty and who are unable to support themselves by manual labor.

(*c*) Retired enlisted men of the Navy or Marine Corps unable to support themselves by manual labor.

In accordance with the act approved June 30, 1914, pensioners in the Naval Home are permitted to receive their pensions. This new feature has contributed much to the comfort and happiness of the aged sailors.

Supernumeraries in the naval hospital, Las Animas, Colo., who have been honorably discharged by reason of disability incurred in line of duty, are given nominal admissions to the home, enabling them to share in the clothing allowance of about $50 per year and pocket money of $3 per month.

BUREAU'S WORKING FORCE.

The officers, clerks and other employees of the bureau have been working overtime to handle the immense amount of work placed on their shoulders because of the shortage in clerks. They are deserving of the highest praise for their untiring efforts, but relief should not be longer delayed. It is most urgently recommended that the very moderate increase in clerks and salaries be allowed at this time.

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INSANITARY AND CONGESTED CONDITION OF OFFICES.

Last, but by no means least, the subject of the insanitary and congested condition of the offices of this bureau is again brought to the department's attention with the recommendation that the available machinery of the Government be enlisted to provide proper office space so that the health of the clerks may not be jeopardized. It is understood that various boards have reported on the insanitary and crowded condition of the offices of this bureau, but these conditions still exist and are daily becoming worse.

The Secretary's office is flooded with daily inquiries in regard to officers and men, and the principal personal work of the department is with Members of Congress who call to make inquiries on the subject of personnel. For this reason, and because of the intimate relation of this bureau to the office of the Secretary and to all bureaus and activities of the service requiring personal and immediate action, all the offices and live records of this bureau should be kept close together, and close to the office of the Secretary.

LEIGH C. PALMER,
Chief of Bureau.

REPORT OF THE CHIEF OF THE BUREAU OF YARDS AND DOCKS.

DEPARTMENT OF THE NAVY,
BUREAU OF YARDS AND DOCKS,
Washington, D. C., October 12, 1916.

From: Bureau of Yards and Docks.
To: Secretary of the Navy.
Subject: Report of the Bureau of Yards and Docks for the fiscal year 1916.

The cost of work performed during the fiscal year 1916 from appropriations under the cognizance of the bureau aggregated $6,098,802.55, divided as follows: Public works, $3,113,219.21; maintenance of yards and stations, $1,590,953.71; repairs and preservation, $1,113,170; contingent, $48,543.65; depots for coal, $232,915.98.

The expenditure of funds under the cognizance of other bureaus and the Marine Corps, but supervised by this bureau, were approximately as follows: "Equipment of vessels, 1914," $15,600; "Engineering," $55,000; "High-power radio stations," $335,000; "Coal and transportation, 1914," $1,695.48; "Aeronautics," $56,000; "Increase of the Navy," $53,000; "Marine Corps," $35,000; "Bureau of Medicine and Surgery," $60,000.

The total value of the work performed under the cognizance or supervision of the bureau during the fiscal year amounted to $6,710,098.03. Seventy-nine contracts were executed during the fiscal year, involving obligations amounting to approximately $1,840,000.

SHORE ESTABLISHMENTS.

The development of the shore establishments has not kept pace with the development of the fleet. Adequate provision has not been made to take care of the vessels already authorized and in prospect.

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The development of our navy yards and stations is just as vital as the increase of the fleet. Unless such development keeps pace with the fleet the Navy will be without adequate facilities at the yards and stations for the repair and upkeep of the vessels. Immediate steps should be taken to develop the main yards to provide the facilities that will be needed at the time the vessels now authorized are commissioned.

The work of major importance that should be undertaken immediately is the development of Norfolk as one of the main naval bases, which includes not only the development of the yard itself, but the acquisition of a site or sites in the vicinity, bordering on Hampton Roads, for training station, submarine and aviation bases, fuel-oil storage, and transfer depot for supplies.

At the New York Navy Yard additional facilities in the shape of structural shops and extension of machine shop should be provided, so that the building of vessels and repair work may be prosecuted economically and expeditiously. The question of the extension of the New York yard or provision for an auxiliary yard in the vicinity of New York should be carefully studied and decided upon.

The Philadelphia yard should be devoted primarily to shipbuilding and to the reserve fleet. The development of the reserve basin should be completed and adequate shops and building ways should be provided for the construction of naval vessels.

Puget Sound should be improved and the berthing and shop facilities increased to provide an equipment adequate for this important station.

A dockyard should be established on San Francisco Bay as an adjunct to the existing navy yard at Mare Island. With the increase in draft for the projected naval vessels, it will become impossible to utilize Mare Island for their accommodation. A site should be secured on deep water and developed to provide for taking care of those ships which can not be sent to Mare Island.

Extensive studies are being made of the needs of each station with a view to the adoption of a comprehensive scheme for their development.

DRY DOCKS.

The recent naval act authorized the construction of two dry docks capable of taking the largest vessel that can pass through the Panama Canal locks. The plans and specifications for both dry docks are practically completed and bids are shortly to be opened on the one at Norfolk and inception of the construction of the other one at Philadelphia will shortly follow. It is expected that these two docks will be completed and ready to dock ships by the early part of 1920.

The work on the dry dock under construction by the State of Massachusetts at Boston is well in hand and continuing. The site for the dock has been excavated, with the exception of the rock excavation, and a cofferdam constructed inclosing it. When an attempt was made to unwater the site in July this year this cofferdam gave way and failed, and work upon repairing and replacing it and other work on the dock was suspended for a time but has again been resumed. The bureau sees no reason to anticipate that this dock will not be completed in 1919.

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The large graving dock constructed at Balboa, Canal Zone, has been completed and is ready for dry docking vessels, so that on the Atlantic coast and at Panama provision has been made for four graving docks capable of taking the largest vessel and which docks would be available for docking the battle cruisers.

In the Pacific, progress on the dry dock at Pearl Harbor, H. T., has been fully up to expectations. The first section has been sunk to place, and the second of the 16 sections composing the dock is well advanced and at this writing ready to be sunk to place. Under authority granted by Congress a contract has been made with the Union Iron Works for the use of a dry dock of the maximum size, and this company has just made arrangements to begin work. It is expected that this dock will be completed in two years, so that at the expiration of this period this dock in San Francisco Bay and the Pearl Harbor dock should be available for docking battle cruisers. When the Pearl Harbor dry dock was redesigned it was not anticipated that battle cruisers of the dimensions now provided for would be built by the United States, so that the Pearl Harbor dry dock, while capable of affording docking facilities to such vessels, will only receive them at normal draft as the depth of water provided will not permit of docking them when over normal draft.

It is believed that the provisions that have been made for dry docking vessels for the Navy still fall short of what is required for naval needs on completion of the present naval program. Any shortcomings would be a source of weakness in case of war. Immediate provision should be made for the construction of a dry dock of maximum size in the vicinity of New York. The dry dock most recently completed at the New York Navy Yard, while large enough for battleships is too short for battle cruisers. Careful investigation has been made of the practicability of constructing a large dry dock in the New York Navy Yard, and while it is possible to do this by rearrangement of some of the structures existing at the present time, or by rebuilding one of the older docks, the bureau does not feel that this would be the best solution of this important problem.

It is believed the construction of a graving dock should be immediately authorized in the vicinity of New York, the definite location of which would be left open to permit of the investigation of sites other than the New York Navy Yard; such sites existing generally on the north shore of Long Island Sound, in the lower reaches of the Hudson River, and in New York Harbor on the Jersey side.

At the Charleston Navy Yard there is at the present time a dry dock capable of taking vessels of the *Florida* class. While ample in width and of just sufficient depth for dry docking large vessels, it is insufficient in length. The foundation conditions are unusually satisfactory and would permit of the lengthening of this dock at comparatively low cost. The approaches to the harbor and the river approaches to the yard, when improved by the dredging contract now underway, will permit of taking battle cruisers to this yard for emergency docking. In view of the fact that there are now no naval docks on the Atlantic coast capable of receiving such battle cruisers, and that probably the naval docks provided for at Philadelphia, Norfolk, and the State dry dock at Boston will not be completed until 1920, there will be no dry docks on the Atlantic coast

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until that time capable of docking the battle cruisers should they be completed before then, and even then no dry dock south of Norfolk except at Panama. The dry dock at Charleston can be lengthened at a cost of approximately one-third of the cost of a new dry dock and within about half the time so that its lengthening is well warranted.

The dry dock recently completed at Puget Sound is too short to dock the battle cruisers authorized. This dock can readily be lengthened to receive the battle cruisers or vessels 1,000 feet in length. An appropriation should be made immediately for this purpose.

MAINTENANCE OF DREDGED DEPTHS AT NAVY YARDS.

The following table shows the expenditures for dredging at the main yards and stations for the past year and the average annual expenditures during the preceding five years.

Station.	Fiscal year 1916.	Average 5 preceding years.
Portsmouth	None.	None.
Boston	$2,746.46	$5,620.00
New York	24,999.91	67,137.20
Philadelphia	294.76	62,639.43
Washington	None.	53.71
Norfolk	73,191.52	5,102.86
Charleston	19,588.87	5,725.00
Mare Island	11,015.92	57,029.02
Puget Sound	13,470.00	10,831.00

At the navy yard, New York, N. Y., extensive study was initiated in 1914, to determine the probable extent of the periodic deposit which might be expected. This work has been continued and as a result of these investigations it has been shown that to maintain a dredged depth of 35 feet at the piers and throughout the basin there will be required an annual expenditure of approximately $40,000. It is quite probable that with the removal of Corlears Hook in the East River directly opposite the navy yard the siltage will decrease.

The table is unforunately not a true indication of the annual maintenance charge for dredging at the various yards and it is impossible to segregate the amount expended for maintenance dredging from that involved in new or deeper dredging work.

It must be appreciated that nearly all navy yards or naval stations and, in fact, all harbors on rivers or estuaries into which large rivers flow, are subject to normal silting up involving a periodic cost for dredging in order that the requisite depth of water may be maintained. This is not an abnormal condition, but one to be expected and provided for. The New York Navy Yard is, therefore, only a normal example of what is to be expected. As a matter of fact the siltage in the New York Harbor is not considered great. In many other important harbors the siltage and consequent maintenance cost is much greater. The condition in this navy yard is only the same as is found in the entire harbor where a considerable expense must be incurred by the municipalities and private owners for annual dredging to maintain dredging berths at piers and wharves.

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FORM OF CONTRACTS FOR PUBLIC WORKS.

Notable improvements have recently been made in the general clauses of contracts for public works which will tend to eliminate the uncertainty and risk heretofore attending the preparation of bids for extensive projects of construction, and which, therefore, will operate to secure more favorable prices for such work. The new contract form has also the effect of emphasizing the important element of time of completion and will be the means of expediting construction as well as avoiding the difficulties formerly experienced in determining damages for delay.

Briefly stated, the new form of contract will involve unit prices instead of a lump-sum price, these unit prices being based on quantities estimated by the Government instead of by the bidder, the Government reserving the right to increase or decrease the quantities during construction as may prove desirable, provided the sum total of the contract is not increased or decreased thereby more than 25 per cent. This feature guarantees to the contractor a definite and fair payment for work actualy performed and the Government secures the advantage of being free to make changes in the contract during construction without incurring the usual difficulties of price adjustment.

It has heretofore been the bureau's practice to specify a definite time for completion and to assess as damages for delay the actual damage suffered by the Government provided such damage could be ascertained. Under the new provisions each bidder states his own time for completion, and the bids are evaluated on the basis of the lowest time named and the agreed penalty per day as damages for delay. For the purpose of comparison the bid naming the shortest time is taken as the standard, and to each other bid is added the amount of the liquidated damages provided in the specification for each day of additional time required by each other bidder. In order that this method may work no injustice the clause relative to damages for delay is an unqualified liquidated damage provision, and its assessment is mandatory regardless of whether the Government incurs actual damage on account of the delay. This uniformly assessed damage will greatly facilitate the final settlement of all contracts and will insure the expeditious completion of all work. The provision permitting the bidder to name his own time for completion allows the Government to take advantage of special plant equipment or other facilities which may be offered to expedite the work and encourages energetic and resourceful contractors to put forth their best efforts for the benefit of the Government.

The mandatory damage clause has made it necessary to give more careful attention than formerly to causes beyond the control of the contractor which may warrant extensions of time. A provision has therefore been adopted which requires the contractor to submit any claim for extension of time within 30 days after the date of the occurrence upon which his claim is based. As a further incentive to close attention to the time feature and to serve as a guide during the progress of the work, the contractor is required to submit a schedule of anticipated progress showing the dates upon which each principal division of the work will probably be begun and completed.

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Another important provision, which has been adopted and which has the effect of obviating the difficulties heretofore frequently experienced in the adjustment of claims for extras, is the clause which provides that in every case in which the contractor is of the opinion that he is being required to furnish any labor or material not called for by the contract, he shall make a written itemized claim within 60 days from the date such material or labor is ordered. This provision also has the important effect of protecting the Government against the bringing of suits in the Court of Claims by contractors, based upon conditions not thoroughly considered at the time of the occurrence upon which the claim is based.

CORPS OF CIVIL ENGINEERS.

The personnel provision in the naval appropriation bill for the present fiscal year has provided the needed relief recommended for several years for officers of the corps and the increase in numbers necessary to carry out the work of the bureau. When the strength of the line has reached the maximum now allowed the strength of the Civil Engineer Corps will be 60 officers, exclusive of the two additional officers. The authorized strength at the present time is 44, while but 38 officers are commissioned. Two additional officers have been detailed for transfer to the corps and are now under instruction at the Rensselaer Polytechnic Institute, Troy, N. Y., and several other officers have been recommended for transfer. Owing to the period required, two years, for postgraduate work it will be impossible for the bureau to fill the vacancies which will exist at that time, estimated at 48, unless additional designations are immediately made. Owing to the increased opportunities for advancement which have been provided for the line, and especially for the Construction Corps, it is exceedingly difficult to secure satisfactory candidates for transfer. The work of the officers of the Corps of Civil Engineers is, generally speaking, of a nature similar to that required of naval constructors in that it is largely technical, and for officers to make good in such profession they must be well grounded in their technical studies and stand well toward the top of their respective classes. It is to be expected that graduates of the Naval Academy who are desirous of following a technical profession will select the corps offering the best opportunities for advancement. The fact that the present law provides for 8½ per cent captains as compared with 5½ per cent in the Civil Engineer Corps gives a material advantage to the Construction Corps in securing candidates for transfer. The bureau recommends that the number of captains in the Civil Engineer Corps be made 8½ per cent as now provided for the Construction Corps. The proportion in the other ranks in the two corps is the same.

ASSISTANT TO CHIEF OF BUREAU.

The naval appropriation act of August 29, 1916, provided for the detail of a civil engineer as assistant to the chief of bureau and acting chief in his absence, but without an increase in rank or pay. This officer is the principal assistant of the chief of bureau and is responsible for the conduct of the bureau during his absence. It is

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essential that he should have rank superior or equal to the other officers who may be detailed to the bureau for duty, and a corresponding increase in pay. It is recommended that the officer detailed as assistant to the chief of bureau be given the rank, pay, and allowances of a captain in the Navy while so detailed.

DEPUTY CHIEF OF BUREAU.

Under the personnel provisions of the naval act of August 29, 1916, provision is made for one officer of the Corps of Civil Engineers with rank of rear admiral. The duties of this bureau, in connection with the design and construction of all public works of the Navy, and maintenance and repair of public works and utilities at the navy yards, is of such broad scope and has increased so much in importance and covers such a great number of yards and stations, in many instances widely separated geographically, that it is believed better and more expeditious results could be in many instances obtained by establishing an office of deputy chief of bureau in the vicinity of San Francisco, Cal. This officer would make regular inspections of public works of the Navy on the Pacific coast, Alaska, and insular stations, and at the same time would be given the necessary authority to approve plans and projects in this territory for work that had been authorized or of such character as conformed with the general policy of the department.

This would enable the bureau in the Navy Department to keep in closer touch with the progress of construction in the area in question by reason of more frequent inspection and a comparative study of results obtained at different stations. Stations in this general area are so remote from Washington that it is impracticable for the chief of bureau to inspect some of the work at all the stations and only possibly rarely to inspect one or more of the more important projects at periods of a year or more apart.

CLERICAL FORCE.

The estimates submitted for fiscal year 1918 for clerical force at the Bureau of Yards and Docks are as follows:

Civilian assistant	$2,500
2 clerks, at $1,800	3,600
2 clerks, at $1,600	3,200
2 clerks, at $1,400	2,800
1 clerk, at $1,300	1,300
3 clerks, at $1,200	3,600
3 clerks, at $1,100	3,300
3 clerks, at $1,000	3,000
1 clerk, at $900	900
1 assistant messenger, at $720	720
4 messenger boys, at $600	2,400
1 messenger boy, at $480	480
3 laborers, at $660	1,980
Total	31,480
Amount appropriated for fiscal year 1917	25,970

The increase recommended includes two additional clerks, one messenger boy, one laborer, and a readjustment of number of clerks in the various classes to provide for a more suitable proportion in the various grades.

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At the present time seven clerks are provided at a compensation of $1,000 per annum. While this amount is sufficient to pay the young and inexperienced clerks in the bureau, it is necessary in order that best results and efficiency be obtained that provision be made for the clerks' advancement in pay as they become expert in the work of the bureau. Consequently, there are too many $1,000 positions provided and too few positions of somewhat higher rating to permit of an even flow of promotion and the consequent encouragement to clerks who show the necessary capacity and diligence to merit advancement. The redistribution of pay contemplates three positions at $1,000 and a redistribution of the four remaining positions at somewhat higher rates to balance the bureau's schedule of clerical pay. The increased work in the bureau, coming with the growth of shore naval establishments as a consequence of the increased naval program, makes it necessary to provide two more clerks, especially since in order to handle the work in hand additional space in a separate building has been rented, involving a more or less separation of the technical and clerical forces.

A civilian assistant is provided in lieu of chief clerk at an increase of $250. The present chief clerk of the bureau, previous to the passage of the naval act of August 29, 1916, performed the duties of the chief of bureau in the absence of the chief, and presumably under the law will continue to act as chief of bureau in the absence of that officer and the officer detailed as assistant to the chief of bureau. In order that he may be enabled to so act he should at all times be familiar with the bureau's business. This requires that he be in fact a civilian assistant to the bureau instead of purely a chief clerk. It is proposed that his designation be changed from chief clerk to civilian assistant and that his compensation be increased to more nearly represent the remuneration that should go with the responsibility.

ANNUAL APPROPRIATIONS.

It is estimated that there will be required for the fiscal year 1918, under the bureau's annual appropriations, the following:

Maintenance	$2,500,000
Repairs and preservation	1,500,000
Contingent	150,000
Total	4,150,000

The amount appropriated under these appropriations for the fiscal year 1916 aggregated $2,794,932, as follows: "Maintenance," $1,647,496, including $52,000 deficiency appropriation; "Repairs and preservation," $1,097,436; "Contingent," $50,000.

For the fiscal year 1917 a total of $2,924,000 has been appropriated.

The estimates represent the minimum required to provide for the upkeep and repair of the public works at the yards and stations and the increased expenditures which must of necessity be incurred by reason of the greater activities of the shore establishments due to the naval program.

The annual appropriations of the Bureau of Yards and Docks provide for the maintenance, upkeep, and repair of public works at the navy yards and naval stations, and certain operating ac-

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tivities such as care and cleaning of grounds, general expense of public works shops, expenses in connection with the office of the commandant and public works office, and the furnishing of facilities for yard transportation, etc.

The provision in the naval appropriation act of August 29, 1916, granting 30 days leave to employees instead of 15 days previously allowed will require an additional expenditure from the bureau's appropriation of approximately $150,000.

The appropriations under public works for the fiscal year 1917 are more than three times the appropriations for the preceding fiscal year with a still further prospective increase for the fiscal year 1918. The carrying out of this increased amount of work will necessitate increasing the technical force at the yards and stations and at the bureau requiring an additional expenditure of $200,000.

In the last few years the activities of the navy yards and naval stations have been steadily increasing with the prospect that for the fiscal year 1918, they will be greatly expanded. Additional work at the navy yards and stations involves additional charges against maintenance for care and cleaning of yards, increased transportation facilities, station lighting, shop expenses of public works shops, and general office expenses of public works departments, commandant's office, etc.

As has been repeatedly represented in the annual reports the amounts provided under the bureau's general appropriations during recent years have proved inadequate to meet the many urgent demands growing out of the logical needs of the Navy ashore for maintenance and repair funds. The growth of the Navy afloat is immediately reflected in the need for additional repair facilities ashore and heavy burdens are brought to bear upon the appropriations which are designed to cover maintenance and repair requirements. The reopening of the naval stations at Pensacola, New Orleans, and New London has also served to throw a heavy load on the bureau's general appropriations.

OPERATIONS DURING FISCAL YEAR 1916.

A brief description of the work in progress or completed during the fiscal year ending June 30, 1916, is as follows:

DRY DOCKS.

Work on the Pearl Harbor dry dock was actively prosecuted during the fiscal year under the plan of construction provided for in the supplemental agreement executed November 19, 1914. It is expected that this dock will be finished by June 30, 1918, the contract date of completion as extended by the agreement.

POWER PLANTS.

The extension of the boiler plant at the naval powder factory, at Indianhead, Md., was nearly completed at the close of the fiscal year. Aside from the installation of mechanical stokers and accessories in the central power plant at the New York Navy Yard, this was the only work of importance carried on during the year.

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BUILDING SLIPS.

The building slips at the navy yards, Boston and Philadelphia, were completed during the fiscal year, the greater part of the work at each place having been performed during the preceding fiscal year.

Work on the building slips and equipment at the navy yards, Norfolk and Charleston, for constructing small craft, and for which $50,000 was provided for each place by the act of March 3, 1915, was nearing completion at the close of the fiscal year.

At the navy yard, Puget Sound, the building slip for submarines, authorized by the act of March 3, 1915, at a cost of $20,000, was nearing completion, the work remaining to be performed consisting chiefly of connections for water, power, etc.

Work was vigorously prosecuted upon the preparation of the Mare Island Navy Yard for the construction of capital ships, under the authorization of $500,000 from appropriation "Increase of the Navy, construction and machinery," covered by joint resolution approved February 15, 1916. Equipment such as shipbuilding cranes and locomotive cranes was contracted for, and other work was carried on by yard labor.

FLOATING CRANES.

The only floating crane which was under construction during the fiscal year was the 150-ton floating revolving crane for the navy yard, Norfolk. The pontoon for this crane was delivered at the navy yard April 23, 1916, but progress on the machinery and superstructure was slow, due to the difficulty of the contractor in securing materials. On June 30 it was estimated that the entire project was about 45 per cent completed.

RADIO STATIONS.

The fiscal year 1916 witnessed great activity in the bureau's operations in connection with radio station improvements. Towers, buildings, and other facilities were contracted for and work prosecuted at the high-power radio stations at Cavite, Pearl Harbor, and San Diego. Work on the 600-foot towers, as well as on the buildings, at Pearl Harbor and San Diego was well advanced at the close of the fiscal year. Progress at Cavite was not so favorable, due to the great distance from the United States and the consequent difficulty in securing prompt delivery of materials.

A contract was let for two 400-foot steel towers for the high-power station at Guam, but progress on this work was confined to fabrication of material in the United States. The material is to be transported, when ready, by Government collier.

Towers, buildings, and other facilities were completed at the radio station, Point Isabel, Tex.

Contracts for towers and buildings at Cordova, Alaska, Keyport, Wash., North Head, Wash., Marshfield, Oreg., and Fire Island, N. Y., were awarded near the close of the fiscal year, with the expectation that work would start on these projects early in the fiscal year 1917.

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PIERS.

After a delay of over 10 months the torpedo-boat berths at the navy yard, Charleston, S. C., were completed at a cost of $261,643.55. The delay in completing this work was due to the fact that the contractor encountered unexpected foundation difficulties, and the work was only able to go forward after exhaustive investigations of the whole matter had been made. Pier C, at the navy yard, New York, was completed near the close of the fiscal year at a cost of $148,925. Several smaller jobs, in connection with water-front developments, were completed during the year.

DREDGING.

A contract was in progress covering dredging at the navy yard, Norfolk, Va., at an estimated cost of $100,000. The work consists of widening the channel and dredging various areas at the navy yard and at the naval magazine. Dredging to the extent of $25,000 was performed at the navy yard, New York. Dredging for torpedo-boat slips and the marine railway at the naval station, Pearl Harbor, was performed at a cost of $40,149.49. Other jobs, of lesser importance, were performed both by contract and by Government labor.

AERONAUTICS.

A building for testing aeroplane motors was constructed at the navy yard, Washington, D. C., at a cost of $7,057.74. At the aeronautic station, Pensacola, Fla., three hangars were contracted for and the work started. The construction of three aeroplane piers was started, a timber bulkhead was completed, and many other items of improvement were either completed or well advanced at the close of the fiscal year.

FUEL-OIL AND GASOLINE STORAGE PLANTS.

During the past fiscal year an automatic fire-protection system was designed for the oil storage at Key West, and this work is now under contract. Plans and specifications have been prepared and work is about to be advertised for fuel-oil storage at Guantanamo. The design includes a new underground tank, boiler plant, and heating system, both for the new underground storage and for the present steel tanks, foam fire protection systems, for both new and old storage, and additional distributing mains, whereby it will be possible to empty one container and pump into any other. The entire system was designed for the storage of the heaviest Mexican oil, which oil is viscous at ordinary temperatures. Plans and specifications are in preparation in various stages of completion for systems similar to that at Guantanamo, to be installed at Pearl Harbor, Puget Sound, San Diego, and Melville, R. I. Due to the fact that the present stage of the development of the Norfolk Navy Yard does not leave a site available for fuel-oil storage, nothing can be done at present toward the expenditure of the appropriation available for this navy yard.

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PUBLIC WORKS FOR THE BUREAU OF MEDICINE AND SURGERY.

The work coming under this head during the past fiscal year was chiefly in the nature of minor improvements and repairs at naval hospitals. However, at the naval hospital, New York, three buildings were constructed for use as contagious-disease units, and at the naval hospital, Washington, D. C., improvements were made in the heat-distributing system at considerable cost. The total expenditures from funds under the cognizance of the Bureau of Medicine and Surgery amounted to only about $60,000, as against $243,977.35 for the previous fiscal year.

PUBLIC WORKS FOR THE MARINE CORPS.

The act of March 3, 1915, provided for the construction of marine barracks at the navy yards, Mare Island and Norfolk, $200,000 being appropriated for each place. Contracts were awarded in October, 1915, and at the close of the fiscal year the barracks at Mare Island were somewhat over half completed, while the Norfolk Barracks were about one-quarter completed. Aside from these projects the work performed for the Marine Corps consisted chiefly of minor improvements and repairs.

PUBLIC WORKS FOR THE BUREAU OF ORDNANCE.

Work was continued on the extension of the powder factory at Indianhead, Md., under the $500,000 appropriation for this purpose. Extensive additions have been made to the boiler plant, numerous buildings have been constructed, the water supply has been increased, and much machinery has been installed.

The assembly shop, torpedo storehouse, and machine shop at the torpedo station, Newport, R. I., were practically completed about the middle of the fiscal year. The construction of these buildings involves appropriations amounting to $260,000.

The construction of a torpedo storehouse and installation of water and sewer systems were effected at the torpedo station, Keyport, Wash. Of the sum of $145,000, which was appropriated for the establishment of the Pacific coast torpedo station, a balance of $31,349 remains, which will be applied to a contract covering power-plant equipment.

At the naval magazine, Fort Mifflin, Pa., the construction of a shell house, a fixed ammunition storehouse, a magazine building, and an extension to the re-forming plant was nearing completion. The construction of one shell house and two magazine buildings at the naval magazine, Puget Sound, Wash., was also nearing completion.

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F. R. HARRIS.

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REPORT OF THE CHIEF OF THE BUREAU OF ORDNANCE.

NAVY DEPARTMENT,
BUREAU OF ORDNANCE,
Washington, D. C., October 6, 1916.

To: The Secretary of the Navy.
Subject: Annual report for the fiscal year 1916.

The bureau submits herewith its annual report. Much material of interest has been omitted, owing to its confidential nature.

GUNS.

The manufacture of all 5-inch guns required to arm the *New Mexico*, *Mississippi*, and *Idaho* has been completed. All 14-inch 50-caliber guns for the *Idaho* have been delivered to that vessel, and the proof of the 14-inch guns for the *Mississippi* and *New Mexico* is proceeding satisfactorily.

All 5-inch 51-caliber cartridge case guns have been replaced with bag guns, and the conversion of the cartridge case guns is nearly completed.

All 8-inch guns have been replaced. The turret guns in the fleet are in excellent condition as regards remaining life except those of the *Arkansas;* the battery of that ship will be replaced this autumn.

Relining of spare guns of the following calibers is being carried out at the Washington Navy Yard: Six 14-inch 45-caliber, four 12-inch 50-caliber, four 10-inch 40-caliber, eighteen 8-inch 45-caliber, and twenty 5-inch 51-caliber.

All other spare guns are ready for service.

Anti-aircraft guns have been provided for the following-named vessels: *Arizona*, *Oklahoma*, *New York*, *Arkansas*, *Utah*, *Delaware*, *South Carolina*, *Pennsylvania*, *Nevada*, *Texas*, *Wyoming*, *Florida*, *Michigan*, and *Connecticut*.

Some of them have been mounted and the remainder will be mounted as soon as the ships are available. Anti-aircraft guns have been provided for six destroyers, the mine sweepers, and mine layers.

In order to test the effect of deepening the rifle grooves in the 4-inch gun as to length of life, the grooves of one gun were successively deepened twice, increasing the depth the first time by 50 per cent and then doubling the original depth. The results of these tests were satisfactory and indicate the advantage of providing deeper grooves to all of our guns.

In general, the bureau has ascertained that the life of our guns has been underestimated—a matter of great importance in its military aspect as well as in its economical result. Experiments have been continued with a view to decreasing erosion, but without progress so far.

All spare guns from 6-inch 45-calibre to 3-pounder, inclusive, for which mounts are available, have been grouped in reserve batteries, and either tentatively or finally assigned to merchant ships. There is a shortage of guns for this purpose, which will partly be filled by guns which are being manufactured under the appropriation "Batteries for merchant auxiliaries" carried in the naval appropriation act approved August 29, 1916.

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GUN MOUNTS.

All work in connection with the turret gun mounts and powder hoists was completed on the *Nevada*, *Oklahoma*, and *Pennsylvania*, all of which ships were in full commission before June 30, 1916. All work on the turret mount installation on the *Arizona* was completed by September 15. The triple-mount turrets as installed on the *Nevada*, *Oklahoma*, and *Pennsylvania* have had preliminary tests, with satisfactory results. The turret mounts for the *Mississippi*, *Idaho*, and *New Mexico* are now being assembled at the Gun Factory. Ten slides belonging to the *Mississippi* and *Idaho* have already been delivered to the shipbuilders. All deck lugs for the *Idaho* have been delivered, as well as those for two turrets of the *Mississippi*.

The 5-inch mounts for the *Arizona*, *Idaho*, and *Mississippi* have been completed, those for the *New Mexico* are nearly completed, and those for the *Tennessee* and *California* are well in hand. The 4-inch mounts for destroyers *57* to *68* are ready for installation, and those for *Nos. 69–74* are well in hand. The gun mounts for submarines of the L and M classes have been completed and have been installed on all but the first four of the L class. Mounts of an improved type are being manufactured for the *Schley*, submarines of the O class, and the fleet submarines. A considerable number of 3-inch and 1-pounder automatic anti-aircraft mounts have been manufactured and will be installed as soon as opportunity occurs.

A new design of 4-inch twin mount for destroyers has been completed and the type mount will be tested within the month. An aircraft gun has also been completed and tested at the proving ground. A design is being prepared for a light 1-pounder mount for motor patrol boats.

POWER POWDER HOISTS.

Power powder hoists have been installed in the *Texas*, *Wyoming*, *Arkansas*, *Oklahoma*, and *Nevada*. The material has been assembled and is ready for installation in the *Delaware* and *South Carolina*. This will complete the scheme for all dreadnaughts.

PROJECTILES.

Contracts were awarded during the year for all the projectiles for which funds were available. Twenty thousand 6-inch and one hundred thousand 3-inch forged steel shell are being manufactured at the navy yards. The 1913 specifications for armor-piercing projectiles demanded new conditions for acceptance, which have been successfully met by four companies. Further experiments are being conducted in the manufacture of armor-piercing shell at the Washington Navy Yard. The Midvale Steel Co. has manufactured a lot of ten 16-inch armor-piercing projectiles. Nine of these have been tested with excellent results, and the bureau is now prepared with the necessary data upon which to base specifications for such projectiles.

SMOKELESS POWDER.

There were manufactured at the naval powder factory, Indianhead, Md., during the fiscal year 1916, a total of 4,220,405 pounds of

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smokeless powder. A comparative statement of powder manufacture at Indianhead during the fiscal years 1914 and 1915 is given below:

	Fiscal year—	
	1915-16	1914-15
New powder manufactured.....pounds..	3,327,329	3,140,013
Reworked powder manufactured.....	893,076	892,046
Total.....	4,220,405	4,052,059
Cost:		
New powder—		
Shop cost, per pound.....	$0.321061	$0.24912
Overhead cost.....	.096052	.072243
Interest.....	.023669	.019893
Total.....	.440782	.341256
Reworked powder—		
Shop cost, per pound.....	.120633	.102334
Overhead cost.....	.096052	.072243
Interest.....	.023669	.019893
Total.....	.240354	.194470

Owing to shortage in labor, delays in delivery of material, and numerous breakdowns, due to defective material or faulty installation by private contractors, the completion of the extensions to the powder factory was delayed several months, and only now is the output approaching the rated capacity of the plant—20,000 pounds per day. These difficulties were practically all due to conditions arising from the European war.

The trained labor at the proving ground was depleted by 41 per per cent, due to higher offers of pay being made by private manufacturers, and the factory was under the necessity of procuring new employees and training them for the work.

The shop cost of manufacture of new powder at Indianhead rose from $0.249 for the fiscal year 1915 to $0.321 for the fiscal year 1916, an increase of $0.072 per pound. This large increase in cost was caused mainly by the increase in the market price of all raw materials entering into the manufacture of explosives, due to the war abroad. As an example, the cost of mixed acid more than doubled, and it was accordingly decided to increase the capacity of the nitric and sulphuric acid plants at Indianhead to take care of the entire capacity of the powder factory. These extensions to the acid plants are now practically completed, and at the current rate for mixed acid they will pay for themselves in a few months. More recently alcohol and nitrating cotton have greatly advanced in price. A supply of sodium nitrate of excellent quality was obtained at a low figure by purchase in Chilean ports and transporting in Navy collier to the United States.

No contracts for smokeless powder were placed with private manufacturers during the year, and no deliveries were made by private manufacturers. One outstanding contract for 790,000 pounds is due for delivery during the next few weeks. Owing to the large demands of the new building program, which are beyond the capacity of the Indianhead plant, additional contracts will be placed with private manufacturers during the coming fiscal year. A number of

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new firms have gone into the manufacture of smokeless powder since the European war began, and it is expected that it will now be possible to secure competitive bids on the Navy's requirements for smokeless powder.

The record of the stabilized powders continues excellent. With but two or three exceptions, all the unstabilized powders in service afloat have been replaced by stabilized powders. The unstabilized powders so withdrawn continue to form an important part of the war reserve of powder, especially for the older guns. As a large proportion of these powders are still of very good stability, it will undoubtedly be several years before they are all finally withdrawn from issue.

A large amount of work has been done in re-proving and correcting the weight of charge of powders which were found to have been proved originally under nonstandard conditions. This work has now been nearly completed for all service powders afloat with the result that ships having two or more indexes on board for a given caliber may rest assured that their powders will "shoot together."

WORK AT NAVAL MAGAZINES.

The policy of inspecting and overhauling ships' service-ammunition outfits as they became available during the ships' repair periods has been continued, with decidedly beneficial results. Besides the routine preparation of target-practice ammunition and of service-ammunition outfits for new construction, the various naval magazines have been actively engaged in the overhauling of service-ammunition outfits of ships undergoing repair as stated above, and also with the assembly of ammunition for ships on the Navy list out of commission, of ammunition for reserve batteries to be mounted on merchant auxiliaries in time of war, and of reserve service ammunition for the fleet. As a result the volume of work has greatly increased requiring additional facilities and more workmen.

HIGH EXPLOSIVES, ETC.

The cost of high explosives for torpedoes, mines, projectiles, etc., has continued very high, owing to the demands from abroad and the difficulty of obtaining certain raw materials. The operations of the new high-explosives plant at Indianhead has been greatly delayed, owing to various causes, but a small quantity of explosive has been successfully produced and it is anticipated that an output of at least 1,000 pounds per day will be reached shortly. The war has shown the necessity of procuring ample reserves in peace time of certain special materials which are normally nearly or quite all imported from abroad, and the bureau is prepared to act accordingly as soon as market conditions become favorable.

FUSES.

The development work with fuses has been actively prosecuted throughout the year. The quality of all service fuses has been greatly improved as a result of the new specifications mentioned in the last annual report and two new types of detonating fuses of

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high efficiency have been adopted for the naval service. Every effort is made to improve the quality of fuses and to increase the number of acceptable types, thereby increasing the source of supply. A large number of old fuses which were found to have greatly deteriorated with age have been withdrawn from service and reloaded, making them as good as new. A new mixed shell filler has been adopted for common shell fitted with ignition fuses which is much more efficient than the black shell powder filler previously used.

ARMOR.

In April, 1916, contract was made with the Carnegie Steel Co. for armor for the *Tennessee* and *California*. This contract called for the following armor:

Class A	tons	14,479.2
Class A–2	do	820
Class B	do	602

The armor under this contract was divided by the Carnegie Steel Co. equally among the Midvale, Carnegie, and Bethlehem Steel Cos.

Armor prices.

Ship.	Class A-1.	Class A-2.	Class B.	Class C.
38	$454	$518	$496	$548
39	440	504	471	448
40, 41, 42	425	486	466	376
43, 44	425	486	460	376–395

During the year the three armor makers delivered armor as follows:

Bethlehem Steel Co	tons	5,649
Carnegie Steel Co	do	5,430
Midvale Steel Co	do	6,928

This completed the delivery of all armor for ships prior to the *Tennessee*, except one group of 657 tons, *New Mexico* armor. (This is a Carnegie group and has been accepted ballistically.)

One group of armor for the *Tennessee* has passed its ballistic test. Otherwise no armor for the *Tennessee* and *California* has been submitted. Drawings for this armor have not yet been received, except for four groups, three of which were received in June and the fourth in August. Otherwise, all of this armor would have been well in hand.

TORPEDOES.

The bureau has placed contracts for all funds for this purpose available under the 1916 appropriation, and is now arranging for the placing of contracts and orders for the torpedoes required under the 1917 appropriation bill.

The facilities for torpedo manufacture at the torpedo station, Newport, have been largely increased so far as buildings and equipment are concerned. Owing to the scarcity of labor and the increased amount of repair and overhaul demanded for torpedoes in service, the output of the plant has not reached our expectations.

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The manufacture of torpedoes at the Washington Navy Yard is progressing satisfactorily, though on a limited scale. The present shop equipment is capable of turning out about 100 torpedoes per annum. All the torpedoes for the United States Navy are now being manufactured by the E. W. Bliss Co., the torpedo station, and the Naval Gun Factory. As they are all practically the same type, uniformity in manufacture and interchangeability of parts must be secured to the fullest extent. In order to accomplish this the bureau proposes to employ subinspectors at the Government plants, as is done with private contractors. Continued experiments are being made at the torpedo station with a view of increasing the range and speed of our torpedoes.

The upkeep of the torpedoes in the fleet and maintaining them in good condition ready for war service is a complex and growing problem. The continual running of torpedoes results that several in the fleet are always unserviceable. Experiment is being made on the *Wyoming* of issuing torpedoes to ships practically ready for firing. Should this experiment ultimately prove successful, the maintenance of torpedoes should become a far more simple problem.

The *Montana* still continues to render valuable service, although her useful time during the past year has been very much curtailed by a prolonged stay at the navy yard for repairs. At the date of this report she is engaged in proving torpedoes manufactured at the Washington Navy Yard, at a station near the mouth of the Potomac River, and at the same time continuing her regular class under instruction.

MINES.

The manufacture of mines at the Norfolk Navy Yard has been continued. The output has been interfered with to some extent by lack of material, and the bureau's expectations of output have not, for this and other reasons, been met.

Exercises with mines have been carried out by the mine force of the fleet, and the reliability of the standard mine determined. A field of mines was planted at Pensacola, to remain down until next spring, in order to test the durability of the mines. In general, all tests so far indicate that the mine is thoroughly reliable and efficient.

ALLOWANCE LISTS.

The work of standardizing broadside battery allowance lists has been practically completed and the standardization of turret lists is going ahead satisfactorily.

Allowance lists are being prepared for merchant vessels to be placed in service in case of war. Detailed instructions will be issued in regard to complete ordnance outfits for these vessels as soon as practicable.

ASSEMBLING OF OUTFITS FOR NEW VESSELS.

In spite of detailed instructions in allowance lists and instructions contained in Naval Regulations and Instructions, the assembling of outfits for vessels completed during the year has not been satisfactory. Long lists of shortages in outfits were reported in connection

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with several ships, particularly noticeable were the *Oklahoma* and *Pennsylvania*. Effort is being made to overcome this by continuing the system of starting inquiries as to status of vessel's outfit, when the vessel is about 75 to 80 per cent completed. A good deal of the trouble has been with material obtained from contractors (optical material, for example).

SHIPS' REQUISITIONS AND SURVEYS.

Requisitions have increased in number and the system of following up a requisition until the material is received by the ship has been continued. There is still considerable time required for the furnishing of certain articles, due principally to supplying and manufacturing all the material at one point (the Washington Navy Yard). Steps are being taken to enlarge the stock of ordnance material carried at New York, Norfolk, and Mare Island, with a view to reducing the delay.

SUPPLY OF MISCELLANEOUS MATERIAL FOR SHIPS.

A definite policy has been approved for determining the stock of spare parts, etc., to be carried at the Washington Navy Yard. The details of getting the material into store are being worked out at the Washington Navy Yard, and it is believed a great saving in time necessary to fill requisitions will result.

FIRE-CONTROL AND OPTICAL INSTRUMENTS.

During the fiscal year ending June 30, 1916, deliveries of fire-control instruments and optical material, except range finders, has been practically completed for all battleships up to and including *Arizona*, destroyers *Nos. 63* to *68*, and all auxiliaries under construction. Delay has been experienced in obtaining deliveries of range finders, due to scarcity of suitable glass for these instruments. It is anticipated that the *Arizona's* range finders will be ready before the ship joins the fleet. Contracts have been made for practically all material for the *New Mexico*, *Mississippi*, and *Idaho*, and deliveries for these ships should be made on contract time.

Development of optical instruments during the year has been in the direction of standardization and simplification of designs with a view to facilitating the supply of such instruments in emergencies. By keeping the number of types to a minimum, accumulating a stock of spares, and simplifying the designs so that additional instruments can be obtained in the shortest possible time in an emergency a much better state of preparedness in this respect can be maintained.

Since the outbreak of the European war it has been increasingly difficult to get deliveries of satisfactory optical material, due to the scarcity of suitable optical glass, particularly for the more complicated instruments, such as range finders, where it is necessary for the glass to be free from defects which might be of minor importance in other instruments. Great strides have already been made by the various manufacturers in producing glass of desired qualities, and it now appears probable that they will soon be able to produce glass of all grades in sufficient quantities to meet the demand.

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Gunnery has developed rapidly during the year, due to reports received in regard to naval battles abroad. The necessity of being able to make hits at ranges much greater than were heretofore considered likely to obtain in battle has emphasized the importance of getting and keeping the range accurately. As firing ranges increase, the relative values of the various errors change radically, the error caused by incorrect sight bar range assuming a relative value which makes it more important than ever that the range be kept with the utmost accuracy possible. Increased attention is therefore being devoted to the development of instruments that will get and keep the range with the greatest precision possible, having in mind conditions as they will probably exist in battle as indicated by reports of naval engagements during the present war.

SPECIAL BOARD ON NAVAL ORDNANCE.

During the fiscal year ending June 30, 1916, the board conducted and reported upon a number of tests with seven different types of fuses. Much has been learned about the action of fuses which has enabled us to make them reliable and uniform.

The board conducted tests to determine the practicability of sympathetic detonation of high explosive shells, mines, and war heads on board a vessel struck by a mine or torpedo. The results of these experiments indicate that danger from such a cause is very slight, if it exists at all, as the board was unable to produce a sympathetic detonation.

The board investigated the subject of "oil explosions" in torpedoes and recommended certain steps to be taken to prevent these accidents.

The board witnessed and reported upon the firing at targets A and B by the *Tallahassee* and *Ozark*.

Preliminary tests of the Clarke bomb were made by the board, but the remaining tests are being made by an officer specially designated by the bureau.

The board has examined and reported on about 850 inventions and devices that have been submitted to the bureau. A large number of the inventors of these devices showed more or less ignorance of the conditions to be met. Many of the devices were wholly impracticable, and a large majority were either too complicated or too visionary to be seriously considered. A great many of these devices were founded upon false principles, while others were devices tested many years ago and discarded as inefficient or impracticable. Of the many devices examined, only three or four appeared to possess sufficient merit to warrant further consideration and development.

Much of the experimental work of the board takes place at the naval proving ground, and many hours are now lost by the board in proceeding to and from the proving ground. Moreover, nearly all the ballistic data needed by the board is on file there. The work of the board, therefore, would be much facilitated if it were stationed at the proving ground instead of at Washington. The inspector of ordnance in charge of the proving ground could then be ex officio a member of the board.

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NAVAL GUN FACTORY.

The following is a summary of the most important work performed at the Naval Gun Factory during the year:

Fourteen 14-inch guns, three 12-inch, fifty-six 5-inch, and twenty-eight 3-inch guns were manufactured; one other 14-inch gun was completed, but the liner was rejected after proof.

The following numbers of guns were relined and rebuilt: 17 major caliber, twenty-four 8-inch, one 7-inch, twenty-two 5-inch, forty-six 3-inch.

Guns modified, overhauled, and put in serviceable condition: Two hundred and twenty-four of all calibers from 5-inch down to 1-pounder.

Miscellaneous.

Contract guns star-gauged, examined, and placed in serviceable condition	87
Breech mechanisms manufactured, overhauled, modified, etc	490
Drill guns completed	41
Firing mechanisms manufactured, modified, or overhauled and placed in serviceable condition	424
Sights completed and partially completed	1,022
Telescopes and optical instruments repaired	1,385
Gun mounts and parts completed, partially completed and overhauled	1,096

Fifty Mark VII Mod. 2 torpedoes have been practically completed, and 50 others are 75 per cent completed. Ninety-six torpedoes on a new order have had 8 per cent of work done on them.

Forty-one Mark II twin tubes have been completed at the yard and eight others are nearing completion. Sixteen Mark III triple tubes have been delivered, and 32 others of the same type are in hand, some of them nearing completion. In addition to this, a number of submerged tubes have been finished and others are well in hand. One hundred and sixty-six thousand two hundred and fifty cartridge cases were manufactured at the yard during the year. The production of cartridge cases at the Gun Factory has been three and a half times as great during this year as during the year preceding. In the same shop a large number of other auxiliaries for ammunition have been manufactured, including powder tanks, cartridge tanks, and ammunition boxes. The Gun Factory has been active in the production of time fuzes, primers, and auxiliaries.

The work done in the forge shop has greatly increased in quantity over that of last year. It has extended in variety, and work that has heretofore been considered of a difficult character has been undertaken, such as forgings for torpedo flask heads, and a 14-inch screw box liner of excellent quality was forged from steel produced in our own foundry. The bureau heretofore has had great trouble in getting these forgings of satisfactory quality from private manufacturers. The total output amounted to over 2,500,000 pounds; some of this apparent increase, however, is due to a different system of accounting of work completed.

The steel foundry is producing ingots of a very high quality. The output in steel castings for the year amounted to nearly 2,700,000 pounds, as against about 2,000,000 pounds last year. The production of iron castings has increased over 27 per cent. The total out-

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put of castings of all kinds and metals amounts to 5,458,300 pounds for 1916, as against 4,535,495 pounds for 1915.

The reworking of nonferrous scrap metal has received a great deal of attention, with a resulting increased economy.

In reviewing the work done at the Gun Factory the most notable achievement lies in the greatly increased output of cartridge cases at a correspondingly reduced cost, and the improved efficiency of the forge shop and foundry. The optical shop has continued its usefulness, and the large accumulation of instruments damaged in service and requiring repairs has been reduced to a very great extent. Before the establishment of this shop this work was generally done by private manufacturers. The establishment of this shop and its extension have not only contributed to the rapidity of replacing injured instruments in service, but has greatly reduced the cost of such replacement to the Government. A new storehouse, completed early in 1916, has helped the efficiency of the Gun Factory in permitting the gathering of stores and supplies in a more systematic manner, and permitting the disposition of obsolete and condemned material more promptly.

New machinery has been installed in the cartridge-case shop, and the facilities of the gun-carriage shops increased by the addition of much-needed machinery. The old foundry, after lying idle, has been converted into a useful shop for the manufacture of torpedo tubes. A number of old machines that were not accurate enough for other work have been removed from the shops and assembled in this building, where they have proved serviceable. Improvements in equipment have been installed in the forging shop and foundry.

The Washington Navy Yard has submitted estimates covering a large amount of machinery for replacements and of improved type to meet the increased activities called for by the building program. These have been made the subject of another communication to the department.

NAVAL PROVING GROUND.

The year's work shows approximately the same amount of work during the year in proof of guns and proof of powders, a considerable increase in proof of breech mechanisms, cartridge cases, and primers, and a decrease in proof of mounts and projectiles. Armor and class B armor showed increases and decreases, respectively. The following is a summary of the most important items of proof work performed during the year:

Guns	371
Breech mechanisms	411
Mounts	135
Powder	150
Projectiles	95
Armor	71
Cartridge cases	292
Primers	388

Of the armor tests enumerated above, four class A plates were experimental. Fifty-three experimental projectiles of various kinds were tested, as compared with 64 in the preceding year. The proof of powder has been made more exact and every possible source of error eliminated in order that the assigned weight of charge as de-

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termined at Indianhead will give exact results afloat. As a result of this work, reassignments of powders have been made and weights of charge corrected. In this manner nearly all the powders in service have been subjected to a re-proof.

Many experiments have been made at the proving ground with a view to preventing the sticking of primers in their seats. In 1916 much trouble was experienced in the fleet from this cause. The torpedo station and the proving ground co-operated in ascertaining wherein the fault could be corrected. The design has been improved and the material changed, and it is believed that these faults will be remedied.

Re-tests have been made of all old fuses in store. This work was begun in 1915 and has just been completed. The investigation has enabled the bureau to assure itself of the operation of all fuses in service by withdrawing and replacing such as were found to have deteriorated.

One hundred and thirty-seven experiments were comprised in the year's work at the proving ground, exclusive of tests and proofs. Some of these experiments were of considerable importance, involving the tests of proposed new explosives, fuses submitted, erosion, etc.

The work of improving and increasing the restricted facilities at the proving ground has been continued. The character of the proof work has changed very greatly with the change that has taken place in the last few years in naval implements of war. These conditions have arrived at a point where it is imperative that an additional proving ground be provided. This is a matter that can not be delayed any longer without serious detriment to the efficiency of the Navy.

POWDER FACTORY.

As stated elsewhere in this report, the production of powder at the proving ground did not reach our expectations. The factory is now, however, on a good working basis and we will probably lose no more of our trained labor, and the existing condition therefore should continue. The acid plant is taking care of our entire needs at the present time, and at a great economy in cost and transportation.

Estimates for improved facilities for handling heavy guns and armor have been submitted, some of which have been taken care of under funds now available. Fifty-eight accidents occurred during the year at the proving ground and powder factory; none of them was serious.

NAVAL TORPEDO STATION, NEWPORT, R. I.

The work of range testing the lot of 200 Mark IX Mod. 1 torpedoes was begun in July, and for the first three months of the fiscal year 1917 78 torpedoes were passed. At the rate of passing accomplished during the month of September it is possible that nearly all of this lot of 200 will be accepted for service by the end of the calendar year. If this expectation is fulfilled, the number of torpedoes produced at the Newport torpedo station for the calendar year ending December 31, 1916, will be approximately double the number delivered in the previous calendar year. The torpedo station reports

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a rate of production for the fiscal year 1916 of 166 torpedoes per annum. Two hundred and thirty-nine torpedoes were received from the service for overhaul during the fiscal year, and 243 overhauled torpedoes were issued to the service. Seventeen new outfits, amounting to 148 torpedoes, were issued, and 84 torpedoes replaced.

Besides the work of manufacture and repair of torpedoes, and partially proving torpedoes manufactured by the Bliss Co., 305,000 primers of all kinds were manufactured. This is a 50 per cent increase over last year's output. The total expenditure for labor and material during the fiscal year 1916 for manufactured articles was $1,663,376.04, as against $1,712,718.48 for 1915. The number of men employed at the end of the fiscal year was 1,086, an increase over the previous year of nearly 14 per cent.

PACIFIC COAST TORPEDO STATION, KEYPORT, WASH.

The combination storehouse, power plant, and office building has been completed. The station force has completed the water and sewer systems, besides the extension to the lighting system, and provided a torpedo range with the necessary equipment. The work of receiving and issuing torpedoes to service has been started, and torpedoes from the *South Dakota* and *West Virginia* have been ranged by the crews of those vessels. The amount of work performed, as shown by expenditures, is more than double, and the bureau believes that the usefulness of this station will now be manifested in an increasing degree. Much, however, remains to be done before the equipment is such as to permit the work to go on with economy and celerity.

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J. STRAUSS,
Chief of the Bureau of Ordnance.

REPORT OF THE CHIEF OF THE BUREAU OF CONSTRUCTION AND REPAIR.

NAVY DEPARTMENT,
BUREAU OF CONSTRUCTION AND REPAIR,
Washington, D. C., October 7, 1916.

To: The Secretary of the Navy.
Subject: Report of the Bureau of Construction and Repair for the fiscal year ended June 30, 1916.

1. I respectfully submit herewith the report of the bureau for the fiscal year ended June 30, 1916, together with estimates for appropriations required for the fiscal year ending June 30, 1918.

2. The estimates marked "A" are for the salaries of the clerical employees of the bureau. These estimates include the new positions authorized under the deficiency act, approved September 8, 1916. The increase of the present estimates over the amount authorized for clerical employees in the bureau for the fiscal year ending June 30, 1917, i. e. $2,000. The conditions obtaining in the bureau's clerical force have been somewhat improved by the additional employees allowed in the deficiency bill; but difficulty is being experienced in obtaining efficient men from the civil-service register of eligibles.

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The work of the bureau being largely of a technical character, considerable time is required for new men to become familiar with the terms used and with the bureau's style of correspondence. However, notwithstanding some handicaps, and the greatly increased volume of work due to the large building program inaugurated, and the continued increase in the Navy, the bureau's clerical work has been kept up to date. This has only been made possible by untiring efforts and by many hours of overtime willingly given by the members of the clerical force. It seems proper to again ask and recommend that the department give consideration to the question of an advance in the rates of pay for the more important and experienced members of the clerical force. There have been no material increases in the rates of pay for these positions in many years despite the increased volume and added importance of the work handled. In order to maintain a high efficiency and a reasonable stability in a clerical force it is necessary to hold out good prospects for promotion, and this can not be done unless a proper and adequate basis of pay is provided for the most important positions.

3. The estimates marked "B" are for the construction and repair of vessels at navy yards and on foreign stations; the purchase of stores, material, machinery, articles of equipage at home and abroad, and tools of all kinds; the construction and repair of yard craft; the pay of the clerical, drafting, inspection, and messenger service in navy yards, naval stations, and offices of superintending naval constructors; and the performance of all work for the Navy in the line of construction and repair. These estimates have been increased in the sum of $1,428,931. Present indications are that the amount appropriated for the fiscal year 1917 will be found inadequate. It appears probable that even keeping the expenditures to the lowest practicable limit there will be an overexpenditure for the first six months of the present fiscal year. So far as can be determined at present there will be a somewhat greater overexpenditure for the second six months of the current fiscal year.

The appropriation "Construction and repair of vessels" has varied very little in the past six years despite the fact that the Navy has increased each year. The size of the Navy having steadily increased, the time has come when the maintenance appropriations must be increased to meet this condition. Additional expenditures also will be found necessary owing to the additional leave granted to the employees of navy yards and naval stations by the last Congress. Owing to the limited funds available and the necessity for proceeding with work on vessels of the active fleet, it has been necessary to restrict the expenditures on new navy-yard craft to the point where further neglect of this item can not be continued without serious detriment to the service, even without taking into account the increased demands due to the increased size of the whole Navy; this is particularly true in regard to the fuel-oil barges. It appears inevitable that there will be a very considerable increase in the cost of doing work due to the increase in cost of practically all materials utilized in ship work and the increased pay of labor which will, in accordance with the law, be raised in conformity with the increases already made and to be expected at practically all private establishments. The effect of the increase in cost of labor and material has been felt during the current fiscal year as was anticipated in the

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bureau's annual report for 1916. The condition will, no doubt, be aggravated in the future. The bureau is already experiencing difficulty in obtaining materials of all kinds.

4. The estimates for "Improvement of construction plants" cover the improvement of the shipbuilding and repair plants at the several navy yards and naval stations, it having been found desirable in previous years to include estimates for appropriations of this character which may be specifically devoted to the improvement of hull division shops. Such a provision is necessary in order that such work may not depend entirely upon allotments from the general appropriations, since casualties in the fleet, which could not be foreseen or estimated for, may make it impossible to utilize any considerable portion of the general appropriation for plant improvements. These estimates are identical with the appropriation for the fiscal year 1917.

5. The estimates marked "C" cover the amounts required by the Bureaus of Construction and Repair and Steam Engineering, under the appropriation "Increase of the Navy; construction and machinery" (including submarine torpedo boats), for work on new vessels already authorized by Congress, including those vessels of the three-year program of the naval act of August 29, 1916, specified to be begun as soon as practicable. These estimates for "Increase of the Navy; construction and machinery" (including submarine torpedo boats), for the fiscal year 1918, as has been the case for similar estimates in previous years, do not include any provision for new vessels of the three-year program to be begun during the fiscal year 1918. For the further information of the department on the subject of appropriations under "Increase of the Navy," there is given below a statement of the amounts actually appropriated for "Increase of the Navy; construction and machinery" (including submarine torpedo boats and colliers), for each of the preceding 11 years and the estimates for the fiscal year 1918 for continuing work on vessels already authorized:

Fiscal year.	Amount appropriated for vessels under old program.	Amount appropriated for first year's work on vessels under new program.	Total.
1908	$12,713,915.00	$500,000.00	$13,213,915.00
1909	9,832,962.00	9,075,000.00	18,907,962.00
1910	16,340,790.00	9,426,033.00	25,766,823.00
1911	13,335,724.00	8,470,000.00	21,805,724.00
1912	6,922,619.67	8,550,000.00	15,472,619.67
1913	6,311,673.00	6,637,500.00	12,949,173.00
1914	15,609,091.00	7,562,412.00	23,171,503.00
1915	13,073,234.00	[1] 10,506,000.00	[1] 23,579,234.00
1916	14,805,803.00	12,090,000.00	26,895,803.00
1917	19,369,127.00	53,130,660.00	72,499,787.00
1918	[2] 90,456,012.00	.....	.....

[1] Includes $2,000,000 appropriated from the proceeds of sale of the former *Idaho* and *Mississippi* toward the construction of a replace vessel.
[2] Estimate submitted for 1918 under old program.

PERSONNEL.

6. The difficulty of carrying on the work of the bureau due to shortage of constructors, which was referrred to in the report for the fiscal year 1915, still continues. The act approved March 3, 1915, pro-

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vided some prospect of relief, but experience with this act indicated that the limit placed on the number of transfers to the construction corps per year prevented increasing the corps at a rate sufficient to meet the requirements of the work. Congress in the act approved August 29, 1916, removed the restriction on the rate at which transfers could be made and placed it within the discretion of the Secretary of the Navy. Acting on this authority a class of double the size of the preceding classes was selected this fall.

7. The act approved August 29, 1916, authorizes a number of constructors proportioned to the amount of work required to be handled, the number increasing gradually as the size of the Navy increases. The construction corps, however, is at present 24 short of the number determined on as immediately necessary and the selection of classes at least as large as the class selected this fall will require to be continued for some years in order to gradually fill this shortage and at the same time provide for casualties and for the gradual increase in the corps referrred to above.

SHIPBUILDING AT NAVY YARDS.

8. The amount of shipbuilding at navy yards again shows an increase over previous years both as regards number of vessels and their total value.

9. The U. S. S. *Arizona* was reported by the navy yard, New York, as completed ready for commissioning on September 15, 1916. The first contracts for material for this vessel were placed September 16, 1913, the keel was laid March 16, 1914, and the vessel was launched on June 19, 1915.

10. The following vessels have been launched during the year:

U. S. S. *Bridge* at navy yard, Boston, May 18, 1916.
U. S. S. *Henderson* at navy yard, Philadelphia, June 17, 1916.
U. S. S. *Cuyama*, at navy yard, Mare Island, June 17, 1916.

11. The construction of the following vessels was assigned to the navy yards indicated during the year:

U. S. S. *Tennessee* (battleship No. 43), navy yard, New York.
U. S. S. *California* (batteship No. 44), navy yard, Mare Island.
U. S. S. *Caldwell* (destroyer No. 69), navy yard, Mare Island.
U. S. S. *Craven* (destroyer No. 70), navy yard, Norfolk.
U. S. S. *O–1* (submarine No. 62), navy yard, Portsmouth.
U. S. S. *O–2* (submarine No. 63), navy yard, Puget Sound.

12. In addition to these vessels the construction of the following, which were authorized in the naval bill of August 29, 1916, has already been assigned to certain navy yards and the preliminary work is already underway:

Fuel ship No. 16, navy yard, Boston.
Hospital ship No. 1, navy yard, Philadelphia.
Gunboat No. 21, navy yard, Charleston.

13. The construction of one of the 800-ton submarines, which were authorized in the same bill, will be undertaken at one of the navy yards, probably at Portsmouth, N. H.

14. The greatest difficulty has been experienced in avoiding serious delays in the construction of all these vessels, due to the abnormal conditions existing in both the material and labor markets. There is available only a limited number of skilled men in the shipbuilding trades, and as these were in great demand in the various

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private establishments, where an unprecedented volume of merchant tonnage was under construction, it proved impracticable to obtain men to increase the navy-yard forces to the point warranted by the large amount of work in hand. In fact, difficulty has been experienced in avoiding serious depletion of the force already employed as the opportunities existing in private plants for increased earnings through overtime work form an inducement which goes far to offset other advantages possessed by Government employment. This condition promises to become more acute when the large volume of work involved in the new naval program is taken in hand, as there appears to be no reason to look for a decrease in the demand for additional new tonnage for the merchant marine.

15. Several yards have had difficulty in pushing new construction work on hand without interference with work of repair and maintenance of the active fleet in commission. It is hoped that conditions as regards the matter above will improve, but the bureau does not anticipate material improvement during the next 18 months, and during this period additional new construction work must be undertaken at the yards with great caution and the recognition of the probability of delays in case such a step becomes necessary.

CONSTRUCTION AND DESIGN.

16. *Battleships, 1916 program.*—During the year the bureau has been carrying out, in conjunction with the Bureau of Ordnance, a thorough and exhaustive series of experiments in connection with the underwater protection of ships against attack by mine and torpedo. In November, 1915, these experiments had reached the point where it became evident that the designs of battleships Nos. 43 and 44 (U. S. S. *Tennessee* and *California*) could be very much improved in this vital respect by the incorporation of the latest experimental results. A redesign of these vessels was accordingly undertaken at once. In this redesign, provision was made also for the installation of electric propelling machinery, with the result that the speed of these vessels will be increased from 20½ knots to 21 knots. This redesign was completed in February, 1916, and the plans were at once issued to the navy yards, New York and Mare Island, the construction of these vessels having been in the meantime assigned to these yards.

17. *General designs, 1917 program.*—The three-year building program, as authorized by Congress in the act approved August 29, 1916, includes 15 distinct types of vessels. Of these, provision was made for laying down, as soon as practicable, 10 different types. When the authorization of this program was recommended to Congress by the President of the United States in his annual message, it at once became evident that, if great delays in laying down these vessels were to be avoided, it would be necessary to start the design work in connection therewith at once. This was accordingly done, and at the same time authority was requested from Congress to make a large increase in the bureau's design force. This increase was provided for in the urgent deficiency bill of February 28, 1916. Due to these prompt steps, and the unremitting efforts of the bureau's force, together with the thorough cooperation of the other design bureaus, it was possible on the same date that this bill was finally approved, to issue advertisements for bids for the construction of battleships *Nos. 45* to *48*, scout cruisers

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Nos. 4 to *7*, destroyers *Nos. 75* to *94*, coast-defense submarines *Nos. 78* to *104*, and 800-ton submarines *Nos. 105* and *106*, and to issue the necessary plans and specifications to prospective bidders. On the same day instructions were issued to the navy yard, Boston, Mass., to proceed with the construction of fuel ship *No. 16;* to the navy yard, Philadelphia, Pa., for hospital ship *No. 1;* and to the navy yard, Charleston, S. C., for proceeding with the work on gunboat *No. 21*, and the necessary plans and specifications were issued at once to these yards. Advertisements for bids for the construction of battle cruisers *Nos. 1* to *4* were issued on October 2, 1916, and the necessary plans and specifications were sent to prospective bidders. This completes the entire design work in connection with the vessels of the new program, to be laid down in the fiscal year 1917, with the single exception of the ammunition ship, and work is proceeding on the plans and specifications of this vessel at such a rate as to insure their completion by November 1, 1916.

18. In connection with the development of the designs of all of these vessels, there was utilized to the utmost such information as was available in regard to naval developments attendant upon the progress of the European war.

19. The experiments referred to above in connection with the development of an efficient system of underwater protection have been continued throughout the year, and the latest developments therein have been incorporated in these designs. In accordance with its usual policy the bureau has been in constant communication, both by correspondence and through personal consultations, with the officers of the active fleet in commission, and has thereby been able to incorporate in the designs the results of experience gained in maneuvers and exercises.

20. *Battleships.*—The plans and specifications for first-class battleships *No. 45 Colorado, No. 46 Maryland, No. 47 Washington*, and *No. 48 West Virginia*, authorized by the act of Congress approved August 29, 1916, were completed and the circular signed by the Secretary of the Navy on August 29, 1916, and issued to bidders upon request immediately thereafter:

21. These battleships are slightly larger than their predecessors, the *Tennessee* and *California*, their chief characteristics being:

Displacement ..... 32,600 tons.
Speed ..... 21 knots.
Battery:
Eight 16-inch guns, in four turrets.
Twenty-two 5-inch guns.
Four 3-inch antiaircraft guns.
Complement, 1,022.

22. These vessels will have the large cruising radius which characterizes all recent United States battleships. Their underwater protection against torpedo attack will be unusually complete and will include features which the experience in the war have shown to be of vital importance.

23. Bids for the construction of these vessels will be opened at the department October 25, 1916.

24. *Scout cruisers.*—The plans and specifications for scout cruisers *Nos. 4* to *7*, authorized by the act of Congress approved August 29, 1916, were completed and circular signed by the Secretary of the Navy August 29, 1916, and issued to bidders upon request immediately thereafter.

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25. These scouts will be the largest and fastest vessels of this class ever laid down by any navy. The chief characteristics are:

Displacement..... 7,100 tons.
Speed..... 35 knots.
Length..... 550 feet.
Breadth, extreme to outside of armor..... 55 feet 4 inches.
Armament:
Eight 6-inch guns.
Two twin torpedo tubes.
Two 3-inch antiaircraft guns.
Complement, 330.

26. Their high-powered machinery installations will be protected by light but efficient vertical and horizontal armor. A new feature of these vessels, never before incorporated in any ship of the powerful military type, will be their complete equipment for carrying, launching, and operating four hydroaeroplanes.

27. Bids for the construction of these vessels will be opened at the department November 1, 1916.

28. *Torpedo-boat destroyers.*—Plans and specifications for torpedo-boat destroyers *Nos. 75* to *94*, authorized by the act of Congress approved August 29, 1916, were completed and circular signed by the Secretary of the Navy August 29, 1916, and issued to bidders upon request immediately thereafter.

29. Following the general type of their predecessors, these vessels will carry a very heavy battery and will have an unusually large cruising radius for vessels of their class. They represent a small increase in displacement over the last class laid down, but will deliver an increased speed of about 5 knots. Their chief characteristics are:

Displacement..... 1,185 tons.
Speed..... 35 knots.
Battery:
Four 4-inch guns.
Four triple torpedo tubes.
Two antiaircraft guns.
Complement, 95.

30. It should be noted that these vessels will attain their rated speed on their full designed displacement, and not on a very much lesser displacement, which can only be attained by stripping the vessels of many essentials, as is the case of many foreign boats of this class for which very high speeds are claimed.

31. Bids for the construction of these vessels will be opened at the department October 25, 1916.

32. *Submarines.*—A further step has been made this year in the direction of preparing complete designs of submarines in the department. Last year a design of fleet submarine was prepared and issued to bidders, but no bids were received on this design. This year, however, the naval bill contemplated the inclusion of three submarines of about 800 tons, this being the size recommended strongly by the commander of the submarine force. The design of one of these vessels is being prepared complete in the department, and it is the intention to build this vessel from these designs in a navy yard. The other two 800-ton submarines are to be designed and built complete by outside contractors. It is hoped to complete

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these vessels expeditiously and to obtain from the results of their trials data in regard to the comparative value of the different types.

33. Circulars of requirements for submarines *Nos. 78* to *104*, these being the 27 coast submarines, and submarines *Nos. 105* and *106*, the latter two being of 800 tons displacement, all authorized by act of Congress approved August 29, 1916, were signed by the Secretary of the Navy on August 29, 1916, and together with the specifications were issued to bidders the same day. Bids for the construction of these vessels will be opened at the Navy Department on November 1, 1916.

34. *Hospital ship.*—Plans and specifications for hospital ship *No. 1*, authorized by the act of Congress approved August 29, 1916, were completed simultaneously with the passage of the naval bill.

35. This vessel will be the first built especially for hospital purposes for the United States Navy. The vessels now in use for this purpose are converted merchant vessels. The design has been worked out by the technical bureaus of the department in constant consultation with the Bureau of Medicine and Surgery, with the result that it will embody every feature of the most up-to-date hospital on shore. It has accommodations for 500 patients. Its chief characteristics and general dimensions are:

Displacement	9,800 tons.
Length	460 feet.
Breadth, extreme	61 feet ⅞ inch.
Draft	19 feet 6 inches.
Speed	16 knots.

As this vessel will be immune from capture or attack in time of war under the terms of the Geneva convention, it will not, in accordance with the terms of that convention, carry any armament of any kind for offense or defense, and in its design there are included no military features of any sort.

36. The department has directed that this vessel be built at the navy yard, Philadelphia.

37. *Fuel ship.*—Plans and specifications for fuel ship *No. 16*, authorized by the act of Congress approved August 29, 1916, were completed simultaneously with the passage of the naval bill.

38. This vessel will be a large oil tanker of the ordinary commercial type, except that in many features its design will meet the requirements of a vessel which must accompany the battle fleet and be capable of supplying fuel to all vessels under adverse conditions of wind and sea. The chief dimensions and characteristics are:

Displacement	14,500 tons.
Length	455 feet.
Breadth, extreme	56 feet 2¾ inches.
Draft	26 feet 2 inches.
Dead-weight carrying capacity (total)	9,600 tons.
Speed	14 knots.

39. The department has directed that this vessel be constructed at the navy yard, Boston.

40. *Gunboat.*—Plans and specifications for gunboat *No. 21*, authorized by the act of Congress approved August 29, 1916, were completed simultaneously with the passage of the naval bill. This gunboat is of a type designed especially for long continued service in the tropical waters.

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41. The chief characteristics are:

Displacement	1,575 tons.
Length	241 feet 2 inches.
Breadth, extreme	41 feet 2½ inches.
Draft	11 feet 4 inches.
Armament:	
Three 4-inch guns.	
Two 1-pounder guns.	
Four 30-caliber machine guns.	
Two 3-inch field guns.	
Two 3-pounder guns.	
Speed	12 knots.
Complement	149.

42. The department has directed that this vessel be built at the navy yard, Charleston, S. C.

43. *Battle cruisers.*—Plans and specifications for battle cruisers *Nos. 1* to *4*, authorized by the act of Congress approved August 29, 1916, were completed and issued to bidders upon request after October 2, 1916.

44. These battle cruisers mark a distinctly new type of vessel in the United States Navy, and will be the largest and fastest armored vessels in the world. The chief characteristics are:

Displacement	34,800 tons (about).
Length	850 feet.
Speed	35 knots.
Breadth, extreme	90 feet 11 inches.
Armament:	
Ten 14-inch 50-caliber guns, in four turrets.	
Eighteen 5-inch R. F. guns.	
Four submerged torpedo tubes.	
Four above-water torpedo tubes, for firing the largest size torpedoes.	
Four 3-inch antiaircraft guns.	
Complement	1,228.

Their high-powered electric propelling machinery will be protected by efficient vertical and horizontal armor. These vessels are also equipped for carrying, launching, and operating the largest size hydroaeroplanes.

45. Bids for the construction of these vessels will be opened at the department December 6, 1916.

46. *Ammunition ship.*—The plans and specifications for ammunition ship *No. 1*, authorized by the act of Congress approved August 29, 1916, are well underway, and it is expected that the plans and circular will be ready for prospective bidders about November 1, 1916. This will permit contracts to be placed well in advance of the termination of the six months' period named for placing contracts in the appropriation bill. This ammunition ship is the first vessel built especially for this purpose for the United States Navy. The design includes all necessary facilities for powder testing, the cooling of powder spaces, and facilities for handling the cargo. Large 'tween-decks spaces are also provided for the carrying of cooled meats and other perishable articles, besides the spaces provided especially for the carrying of ammunition.

47 The principal dimensions and characteristics of this vessel are as follows:

Displacement	10,600 tons.
Length	460 feet.
Breadth, extreme	61 feet 07/8 inch.
Draft	20 feet 11 inches.
Speed	16 knots.

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48. *Air craft design.*—During the past year a complete design of a naval aeroplane of about 6,000 pounds total flying load has been developed at the navy yard; the machine itself has been constructed, and successful preliminary flights have been made. The actual construction of this machine in the navy yard has resulted in the accumulation of much valuable data in regard to the details of construction involved and the suitability of different materials for purposes of aeroplane construction.

49. On account of war conditions, considerable difficulty was experienced in obtaining suitable material, notably in the wire and cable for the trussing of the aeroplane; this situation was met by utilizing the Navy's own resources for manufacture of such material at the rope walk, in the navy yard, Boston.

50. During the course of the past year the revised design of catapult built at the Washington Navy Yard was successfully operated from aboard the U. S. S. *North Carolina.* As a result of these trials a more complete installation was developed and installed on the U. S. S. *North Carolina,* using the same power plant as in the original trials on that vessel.

51. The general layout of the new installation was supervised by the bureau and the details worked out by the Pensacola Aeronautic Station. In the meantime, due to demands for increased capacity, the design and construction of new power plants have been taken up at the Washington Navy Yard.

52. In both the installation on the U. S. S. *North Carolina* and the revision of the power plant design, the bureau has found itself seriously handicapped by the bad conditions of the material market.

53. *Motor patrol boats.*—In line with the department's plan of interesting civilian motor boat owners in organizing into divisions and squadrons for the purposes of training in the use of such boats for patrol purposes in time of national need, the bureau has endeavored to stimulate the interest of the motor boating public in acquiring types of motor boats having the characteristics necessary to fit them for the Government's use if needed. The bureau has from time to time reviewed plans and specifications of motor boats when submitted by yacht designers and prospective owners and for each type of boat has indicated the changes that should be made to render such types suitable for the purposes of the Government. To illustrate that motor boats built for pleasure craft but suitable for the Government's purpose as patrol boats can be obtained at a reasonable price and without sacrificing any of the essential features usually provided for such craft for pleasure purposes, the purchase of two motor boats has been undertaken; one 45 feet in length to make a speed of not less than 25 statute miles and to be suitably constructed to carry a one-pounder gun, to cost $12,000; the other not less than 65 feet in length, of a speed of not less than 30 statute miles per hour and to cost $28,000. These boats are now under construction. The boats when completed will be assigned one to the commandant of the second naval district, Newport, R. I., and the other to the commandant of the third naval district, New York. It is the intention that they should be available for examination by, and freely exhibited to, those civilians who are properly interested in the subject and who are about to purchase motor boats of the characteristics indicated.

54. *Experimental model basin.*—Owing to the large prospective building program, the model basin has been kept extremely busy

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during the year in preparing suitable lines for the different types of vessels contemplated. Though the characteristics of some of these vessels were quite new and beyond the range of previous experience, the results, so far as the model tests indicate, will be satisfactory. As the work was undertaken well in advance, the results have been made available in sufficient time not to involve any delay in the preparation of contract plans.

55. Unprecedented activity in commercial shipbuilding has resulted in an increase in the amount of work done in the model basin for private shipbuilding companies, about 20 per cent of all the work done in the model basin being of this character.

56. The new wave-making apparatus has been used to investigate the rough water qualities of some of the new designs, and also to ascertain the prospective reduction in speed which may be expected when meeting waves of different sizes.

57. The basin has also been equipped with dynamometers to measure all the forces developed when a model is self-propelled, which it is expected will permit more complete analyses to be made of the trial results of naval vessels, as well as facilitating the solution of problems arising in the design of new vessels.

58. *Experimental wind tunnel.*—The work in the wind tunnel at the Washington Navy Yard is increasing in importance. In addition to experiments of a miscellaneous nature for the Naval Air Service and the technical bureaus of the Navy Department, many tests of aerofoils, dirigibles, etc., have been made for private parties. About 15 per cent of the total work done was for private concerns.

59. Experiments have been continued on the radiating efficiency of various types of radiators and the air resistance of the same.

60. A ship's model with complete rigging has been tested for air resistance with interesting results.

61. A type of speed meter for use on aeroplanes has been developed, calibrated in the wind tunnel, and tested in actual flight with satisfactory results. A considerable amount of work has been done also in connection with the inspecting and testing of aeronautical instruments purchased for use by the Navy Department.

* * * * * * *

VESSELS SURVEYED.

The following vessels have been surveyed and repairs authorized during the past fiscal year:

Vessel.	Where surveyed.	Date of survey.	Estimated cost of repairs.
Arkansas	New York	Oct. 4, 1915	$36,795.07
Do	do	Jan. 11, 1916	9,229.28
Do	do	May 23, 1916	7,239.00
Aylwin	Norfolk	July 7, 1915	4,060.68
Do	New York	Jan. 26, 1916	5,842.14
Baltimore	Norfolk	Aug. 11, 1915	3,951.00
Do	Portsmouth	June 6, 1916	7,222.00
Beale	Norfolk	Jan. 15, 1916	4,162.24
Do	Philadelphia	May 22, 1916	4,615.50
Birmingham	Boston	Nov. 30, 1915	10,875.51
Brooklyn	Philadelphia	July 10, 1915	25,739.00
Brutus	Charleston	Sept. 1, 1915	17,298.50
Bagley	Norfolk	Jan. 20, 1916	3,364.91
Castine	New Orleans	July 8, 1915	11,179.00
Charleston	Puget Sound	Dec. 1, 1915	4,889.44
Chattanooga	do	Dec. 3, 1915	16,617.18
Do	do	Jan. 12, 1916	3,190.97

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Vessel.	Where surveyed.	Date of survey.	Estimated cost of repairs
Chester	Boston	May 23, 1916	$16,211.54
Do	do	May —, 1916	5,157.00
Connecticut	Philadelphia	Jan. 27, 1916	15,618.02
Colorado (armored cruiser No. 7)	Puget Sound	Nov. 24, 1915	34,030.00
Do	do	Mar. 1, 1916	4,887.00
Do	do	Mar. 24, 1916	3,642.00
Cyclops	Norfolk	June 14, 1916	25,334.48
D-1	New York	Jan. 11, 1916	5,402.28
D-2	do	do	4,302.17
D-3	do	Jan. 31, 1916	5,807.85
Denver	Mare Island	Nov. 24, 1915	3,986.00
Dolphin	Norfolk	Dec. 27, 1915	5,415.40
Delaware	do	Jan. 22, 1916	33,867.26
Do	do	May 29, 1915	7,521.17
Drayton	Philadelphia	May 11, 1916	7,175.00
E-1	New York	May 8, 1916	8,970.55
E-2	do	Oct. 22, 1915	5,590.30
Eagle	Portsmouth	Dec. 23, 1915	7,385.00
Fanning	Norfolk	July 8, 1915	3,544.80
Florida	New York	Nov. 11, 1915	9,368.00
Do	Norfolk	June 19, 1916	10,945.10
Flusser	Charleston	July 12, 1915	5,481.79
Do	do	Jan. 25, 1916	1,439.00
G-1	New York	Sept. 1, 1915	55,940.34
Georgia	Boston	Jan. —, 1916	19,642.40
Glacier	Mare Island	Sept. 13, 1915	10,846.00
Gloucester	New York	Apr. 15, 1916	2,706.00
Goldsborough	Puget Sound	May 29, 1916	1,571.00
Hector	Norfolk	Mar. 24, 1916	23,501.98
Henley	New York	Sept. 15, 1915	14,589.14
Hopkins	Mare Island	Nov. 6, 1915	1,089.00
Hull	do	Nov. 4, 1915	1,119.00
Jouett	Philadelphia	May 4, 1916	1,490.00
Jupiter	Norfolk	Aug. 18, 1915	3,084.60
Do	do	Jan. 27, 1916	19,421.61
K-1	New York	Sept. 25, 1915	5,308.17
K-2	do	Sept. 1, 1915	7,784.66
K-5	do	Sept. 25, 1915	3,304.94
Kearsarge	Philadelphia	Feb. 18, 1916	11,276.50
Lawrence	Mare Island	Nov. 22, 1915	3,602.00
Lebanon	Norfolk	Jan. 22, 1916	4,351.94
Do	do	June 12, 1916	8,853.56
Leonidas	Portsmouth	Nov. 1, 1915	19,678.00
Louisiana	Norfolk	Dec. 21, 1915	8,281.99
Do	do	Jan. 27, 1916	6,564.98
Mars	Mare Island	Dec. 8, 1915	8,605.00
Marblehead	do	May 3, 1916	12,031.00
Maryland (armored cruiser No. 8)	do	Nov. 15, 1915	18,579.00
Memphis	Portsmouth	Oct. 11, 1915	27,873.00
Michigan	Philadelphia	July —, 1915	22,883.00
Monaghan	Charleston	Feb. 2, 1916	4,021.76
Nashville	New Orleans	Mar. 3, 1916	11,765.00
Nebraska	Boston	July —, 1916	14,727.48
Neptune	Norfolk	Jan. —, 1916	14,162.72
Do	do	Apr. 21, 1916	4,783.93
Nereus	do	July 7, 1915	4,491.00
New Hampshire	do	July 15, 1915	15,616.00
Do	do	Apr. 26, 1916	15,356.60
New Orleans	Puget Sound	July —, 1915	23,756.37
Do	do	Sept. 9, 1915	5,140.18
Do	do	Mar. 16, 1916	7,401.84
New York	New York	Jan. 31, 1916	8,511.49
North Carolina	Portsmouth	July 3, 1915	22,949.00
Olympia	Charleston	Aug. 13, 1915	43,926.00
Orion	Norfolk	June 28, 1916	9,942.99
Osceola	Charleston	Mar. 21, 1916	11,869.04
Ozark	New York	Apr. 4, 1916	13,134.56
Paducah	Portsmouth	Oct. 30, 1915	16,329.00
Paul Jones	Mare Island	Nov. 17, 1915	1,060.00
Panther	Charleston	Jan. 20, 1916	8,977.59
Parker	New York	Jan. 8, 1916	10,282.44
Patapsco	Norfolk	Jan. 20, 1916	3,842.77
Patuxent	do	Dec. 7, 1915	6,778.04
Perry	Mare Island	Nov. 12, 1915	1,606.00
Petrel	New Orleans	Aug. 3, 1915	8,677.00
Philadelphia	Puget Sound	Jan. 27, 1916	3,078.30
Do	do	Apr. 28, 1916	2,619.00
Pittsburgh	do	July 7, 1915	5,105.00
Do	do	Jan. 14, 1916	5,431.40
Do	do	Apr. 10, 1916	3,637.00
Preble	Mare Island	Nov. 26, 1915	1,216.00
Preston	Charleston	July 23, 1915	4,559.75
Do	do	Jan. 24, 1916	3,975.51
Prometheus	Norfolk	Jan. 3, 1916	4,919.00
Proteus	do	July 9, 1915	8,864.76

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Vessel.	Where surveyed.	Date of survey.	Estimated cost of repairs.
Raleigh	Mare Island	Sept. 14, 1915	$3,234.00
Reid	Charleston	Feb. 9, 1916	2,965.57
Roe	do	Feb. 4, 1916	2,942.09
Saturn	Puget Sound	Sept. 7, 1915	8,844.91
Solace	New York	Dec. 20, 1915	70,774.25
Stewart	Mare Island	Nov. 11, 1915	893.00
Supply	Puget Sound	Nov. 13, 1915	56,114.00
Sacramento	Portsmouth	Jan. 24, 1916	14,543.00
San Francisco	do	Dec. 16, 1915	35,020.00
Sonoma	New York	Apr. 4, 1916	7,810.57
South Dakota	Puget Sound	June 22, 1916	5,401.42
Sterett	Charleston	Feb. 23, 1916	2,928.50
St. Louis	Puget Sound	Mar. 30, 1916	23,857.00
Do	do	June 7, 1916	6,728.00
Supply	do	Jan. 26, 1916	7,282.00
Do	do	Mar. 27, 1916	6,539.00
Sylvia	Norfolk	do	2,193.45
Terry	Charleston	Jan. 26, 1916	4,586.55
Texas	New York	Sept. 24, 1915	13,631.59
Do	do	Nov. 22, 1915	32,480.73
Truxton	Mare Island	Nov. 8, 1915	1,174.00
Uncas	Charleston	Dec. 2, 1915	5,289.33
Do	do	May 11, 1916	9,145.37
Utah	New York	July 24, 1915	31,891.70
Do	Norfolk	June 19, 1916	6,912.39
Vermont	do	Jan. 25, 1916	19,877.45
Vicksburg	Puget Sound	Oct. —, 1915	26,789.40
Virginia	Boston	Dec. —, 1915	25,709.00
Vulcan	Portsmouth	Aug. 25, 1915	25,417.00
Walke	Charleston	Jan. 26, 1916	3,968.05
Warrington	New York	Oct. 6, 1915	19,026.67
Washington (armored cruiser No. 11)	Portsmouth	Mar. 7, 1916	54,913.00
West Virginia (armored cruiser No. 5)	Puget Sound	Sept. 30, 1915	4,326.00
Do	do	Nov. 9, 1915	3,660.00
Do	do	Jan. 4, 1916	49,263.00
Do	do	Apr. 5, 1916	3,154.00
Do	do	June 8, 1916	32,276.00
Wheeling	New Orleans	Jan. 24, 1916	7,372.00
Whipple	Mare Island	Nov. 16, 1915	1,030.00
Wyoming	New York	Jan. 25, 1916	18,799.15
Yankton	do	Dec. 16, 1915	5,749.25

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ADDITIONS TO THE NAVY SINCE JUNE 30, 1915.

The additions to the effective force of the Navy since June 30, 1915, by the completion of vessels building under contract and at navy yards are as follows: Battleships, *Nevada, Oklahoma, Pennsylvania, Arizona.* Destroyers, *Winslow, Cushing, Ericsson, Tucker, Conyngham, Porter, Wadsworth, Jacob Jones, Wainwright, Sampson, Rowan, Davis.* Tenders, *Bushnell, Melville.* Fuel ship, *Maumee.* Submarines, *L–1, L–2, L–3, L–4, L–9, L–10, L–11.*

TRIAL AND ACCEPTANCE DATA.

Statement of data relative to trials of vessels which have been preliminarily but not finally accepted since June 30, 1915.

Name.	Type.	Date of trial.	Speed required by contract.	Speed obtained on trial.	Date of preliminary acceptance.	By whom built.
			Knots.	*Knots.*		
Nevada	Battleship	Nov. 5, 1915	20.50	20.53	Mar. 11, 1916	Fore River S. B. Co.
Oklahoma	do	Jan. 25–26, 1916.	20.50	20.58	May 2, 1916	New York S. B. Co.
Pennsylvania	do	Feb. 28, 1916	21.00	21.05	June 12, 1916	Newport News S. B. Co.
Winslow	Destroyer	June 30, 1915	29.00	29.05	Aug. 7, 1915	Wm. Cramp & Sons
Cushing	do	May 26, 1915	29.00	29.18	Aug. 21, 1915	Fore River S. B. Co.
Ericsson	do	May 19, 1915	29.00	29.29	Aug. 14, 1915	New York S. B. Co.
Tucker	do	Mar. 20, 1916	29.50	29.70	Apr. 11, 1916	Fore River S. B. Co.

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Statement of data relative to trials of vessels which have been preliminarily but not finally accepted since June 30, 1915—Continued.

Name.	Type.	Date of trial.	Speed required by contract.	Speed obtained on trial.	Date of preliminary acceptance.	By whom built.
			Knots.	*Knots.*		
Conyngham	Destroyer	Dec. 8, 1915	29.50	29.63	Jan. 20, 1916	Wm. Cramp & Sons.
Porter	do	Mar. 11, 1916	29.50	29.58	Apr. 17, 1916	Do.
Wadsworth	do	June 22, 1915	30.00	30.67	July 23, 1915	Bath Iron Works.
Jacob Jones	do	Dec. 27, 1915	29.50	29.57	Feb. 10, 1916	New York S. B. Co.
Wainwright	do	Mar. 18, 1916	29.50	29.67	May 12, 1916	Do.
Sampson	do	May 23, 1916	29.50	29.52	June 23, 1916	Fore River S. B. Co.
Rowan	do	July 21–29, 1916.	29.50	29.57	Aug. 19, 1916	Do.
Davis	do	Sept. 6–10, 1916.	30.00	30.36	Oct. 4, 1916	Bath Iron Works.
L–1	Submarine	Feb. 8–9, 1916	.....	.....	Apr. 11, 1916	Fore River S. B. Co.[1]
L–2	do	Mar. 2–6, 1916	.....	.....	Sept. 28, 1916	Do.
L–3	do	Feb. 11, 1916	.....	.....	Apr. 21, 1916	Do.
L–4	do	Feb. 29, 1916	.....	.....	May 4, 1916	Do.
L–9	do	June 2-12, 1916	.....	.....	Aug. 4, 1916	Fore River S. B. Corpn.[1]
L–10	do	June 3-16, 1916	.....	.....	Aug. 2, 1916	Do.
L–11	do	July 3-19, 1916	.....	.....	Aug. 15, 1916	Do.
Bushnell	Submarine tender.	Sept. 14, 1915	14.00	14.15	Nov. 20, 1915	Seattle Cons't'n & D. D. Co.

[1] Electric Boat Co., New York, contractors.

Statement of data relative to trials of vessels which have been finally accepted since June 30, 1915.

Name.	Type.	Date of trial.	Speed required by contract.	Speed obtained on trial.	Date of preliminary acceptance.	Date of final acceptance.	By whom built.
			Knots.	*Knots.*			
Texas	Battleship	Oct. 28, 1913	21.00	21.05	Mar. 12, 1914	Apr. 22, 1916	Newport News S. B. Co.
McDougal	Destroyer	May 14, 1914	29.00	30.70	June 16, 1914	Oct. 8, 1915	Bath Iron Works.
G–4	Submarine	Sept. 17, 1914	.....	.....	Sept. 21, 1914	Mar. 7, 1916	Wm. Cramp & Sons.
K–2	do	Dec. 12, 1913	.....	.....	Jan. 30, 1914	Sept. 11, 1916	Fore River S. B. Co.[1]
K–3	do	Aug. 17, 1914	.....	.....	Oct. 29, 1914	Sept. 8, 1916	Union Iron Works.[1]
K–4	do	July 6, 1914	.....	.....	Oct. 24, 1914	Sept. 9, 1916	The Moran Co.[1]
K–5	do	June 4, 1914	.....	.....	Aug. 20, 1914	Sept. 12, 1916	Fore River S. B. Co.[1]
K–7	do	Sept. 24, 1914	.....	.....	Dec. 1, 1914	Sept. 13, 1916	Union Iron Works.[1]
K–8	do	Sept. 28, 1914	.....	.....	do	Sept. 15, 1916	Do.
Sacramento	Gunboat	Mar. 31, 1914	12.50	12.78	Apr. 26, 1914	Aug. 11, 1916	Wm. Cramp & Sons.
Fulton	Submarine tender.	Nov. 1, 1914	12.25	12.34	Dec. 2, 1914	Sept. 25, 1916	New London Ship & Engine Co.
Melville	Destroyer tender.	July, 16–17–18, 1915.	15.00	15.09	Dec. 2, 1915	Sept. 28, 1916	New York Ship Building Co.

[1] Electric Boat Co., New York, contractors.

Vessels dropped from the Navy since June 30, 1915.

Name.	Type.	Stricken from the Navy Register.
F–4	Submarine	Aug. 31, 1915
Stranger	Converted yacht	Oct. 23, 1915
Franklin	Sailing vessel	Oct. 26, 1915
Oneida	Converted yacht	Nov. 8, 1915
Concord	Gunboat	Dec. 31, 1915
Justin	Fuel ship	Do.
Lancaster	Ship	Do.
Miantonomah	Monitor	Do.
Terror	do	Do.
Mackenzie	Torpedo boat	Mar. 10, 1916
Callao	Gunboat	Apr. 17, 1916
Alice	Tug	Apr. 28, 1916
Fox	Torpedo boat	Aug. 31, 1916

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Vessels building for the increase of the Navy are listed in the following tables, which include all those authorized by law, with the exception of 4 battleships, 4 battle cruisers, 4 scout cruisers, 1 fuel ship, 1 hospital ship, 1 ammunition ship, 1 gunboat, 20 destroyers, and 30 submarines appropriated for by the last Congress; and 6 battleships, 2 battle cruisers, 6 scout cruisers, 30 destroyers, 37 submarines, 2 fuel ships, 1 repair ship, 1 transport, 2 destroyer tenders, 1 fleet submarine tender, 1 ammunition ship, and 1 gunboat authorized by the last Congress but not appropriated for.

Vessels building under contract.

Name.	By whom building.	Estimate of—		Contract time.	Expiration of contract time.
		Degree of completion Oct. 1, 1916.	Probable date of completion.		
BATTLESHIPS.		*Per cent.*		*Months.*	
Mississippi (41)	Newport News S. B. Co.	55.9	Dec. 1, 1917	36	Nov. 23, 1917
Idaho (42)	New York S. B. Co.	64.8	Apr. 1, 1918	36	Nov. 9, 1917
DESTROYERS.					
Davis (65)	Bath Iron Works	(2)		21	Oct. 30, 1916
Allen (66)	do	89.9	Feb. 15, 1917	24	Jan. 30, 1917
Wilkes (67)	Wm. Cramp & Sons	91.1	Nov. 28, 1916	22	Nov. 28, 1916
Gwin (71)	Seattle Construction & D. D. Co.	10.2	Nov. 8, 1917	20	Nov. 8, 1917
Conner (72)	Wm. Cramp & Sons	13.6	Aug. 20, 1917	19½	Aug. 20, 1917
Stockton (73)	do	13.6	Sept. 5, 1917	20	Sept. 5, 1917
Manley (74)	Bath Iron Works	27.8	Aug. 30, 1917	20	Aug. 30, 1917
SUBMARINES.					
G-2 (27)[1]	Lake T. B. Co.	92.0		28	Aug. 21, 1911
G-3 (31)[1]	do	89.5		20	Sept. 19, 1912
L-5 (44)	do	87.6	Feb. 1, 1917	24	Apr. 24, 1916
L-6 (45)	Craig S. B. Co.[3]	85.0	Do.	24	Do.
L-7 (46)	do	84.7	Mar. 1, 1917	24	Do.
M-1 (47)	Fore River S. B. Co.[4]	99.4	Apr. 6, 1917	26	Apr. 4, 1915
Schley (52)	Fore River S. B. Corporation[4]	27.3	Mar. 19, 1918	36	Mar. 19, 1918
N-1 (53)	Seattle Construction & D. D. Co.[4]	67.6	May 19, 1917	26	May 19, 1917
N-2 (54)	do	66.3	June 19, 1917	27	June 19, 1917
N-3 (55)	do	64.6	July 19, 1917	28	July 19, 1917
N-4 (56)	Lake T. B. Co.	74.3	Do.	24	Feb. 18, 1917
N-5 (57)	do	73.1	Aug. 1, 1917	25	Mar. 18, 1917
N-6 (58)	do	72.0	Sept. 1, 1917	26	Apr. 18, 1917
N-7 (59)	do	71.5	Oct. 1, 1917	27	May 18, 1917
No. 60	Fore River S. B. Corporation[4]		Oct. 2, 1918	24	Oct. 2, 1918
No. 61	do		Dec. 2, 1918	26	Dec. 2, 1918
O-3 (64)	do	19.0	Oct. 3, 1917	21	Oct. 3, 1917
O-4 (65)	do	19.0	Nov. 3, 1917	22	Nov. 3, 1917
O-5 (66)	do	19.0	Do.	22	Do.
O-6 (67)	do	19.0	Dec. 3, 1917	23	Dec. 3, 1917
O-7 (68)	do	19.0	Do.	23	Do.
O-8 (69)	do	18.6	Jan. 3, 1918	24	Jan. 3, 1918
O-9 (70)	do	18.6	Do.	24	Do.
O-10 (71)	do	18.6	Feb. 3, 1918	25	Feb. 3, 1918
O-11 (72)	Lake T. B. Co.	34.9	Oct. 28, 1917	22	Oct. 28, 1917
O-12 (73)	do	34.1	Nov. 28, 1917	23	Nov. 28, 1917
O-13 (74)	do	32.5	Dec. 28, 1917	24	Dec. 28, 1917
O-14 (75)	California S. B. Co.[5]	23.6	Mar. 1, 1918	23	Nov. 30, 1917
O-15 (76)	do	22.2	Apr. 1, 1918	24	Dec. 31, 1917
O-16 (77)	do	20.4	May 1, 1918	25	Jan. 31, 1918

[1] Contracts forfeited, vessels being completed at navy yard, New York, commissioned preparatory to trials.
[2] Delivered Oct. 4, 1916.
[3] Lake Torpedo Boat Co., Bridgeport, Conn., contractors.
[4] Electric Boat Co., New York, contractors.
[5] Successor to Craig Shipbuilding Co.

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Vessels building at navy yards.

Name.	Where building.	Estimate of—		Constructional period.	Expiration of constructional period.
		Degree of completion, Oct. 1, 1916.	Probable date of completion.		
BATTLESHIPS.		*Per cent.*		*Months.*	
Arizona (39)	New York, N. Y.	99.9	(1)	36	Sept. 15, 1916
New Mexico (40)	do	48.6	June 1, 1918	36	June 1, 1918
Tennessee (43)	do	.8	[2] June 9, 1919		
California (44)	Mare Island, Cal.	3.2	do		
DESTROYERS.					
Shaw (68)	Mare Island, Cal.	72.5	Jan. 1, 1917	17	Jan. 1, 1917
Caldwell (69)	do	20.7	Dec. 1, 1917		
Craven (70)	Norfolk, Va.	8.4	Sept. 1, 1918		
FUEL SHIPS.					
Maumee (14)	Mare Island, Cal.	99.7	(3)	27	Jan. 1, 1916
Cuyama (15)	do	81.6	Apr. 1, 1917	21	Aug. 1, 1917
Number 16	Boston, Mass.				
SUPPLY SHIP.					
Bridge (1)	Boston, Mass.	84.0	May 1, 1917	36	Feb. 19, 1917
HOSPITAL SHIP.					
Number 1	Philadelphia, Pa.				
TRANSPORT.					
Henderson (1)	Philadelphia, Pa.	78.7	Apr. 1, 1917	36	Feb. 19, 1917
SUBMARINES.					
L-8 (48)	Portsmouth, N. H.	90.8	Apr. 1, 1917	24	Nov. 27, 1916
O-1 (62)	do				
O-2 (63)	Puget Sound, Wash.				
GUNBOAT.					
Number 21	Charleston, S. C.				
TUGS.					
Wando	Charleston, S. C.	95.0			
Pocahontas	Norfolk Va.	95.0			

[1] Arizona placed in commission Oct. 17, 1916.
[2] Latest estimate of the navy yard, New York, for the completion of the U. S. S. Tennessee.
[3] Maumee placed in commission Oct. 23, 1916.

VESSELS LAUNCHED SINCE JUNE 30, 1915.

The following is a list of vessels launched since June 30, 1915, together with the date of launching:

Name.	Launched.	Name.	Launched.
Copyngham	July 8, 1915	L-5	May 1, 1916
Porter	Aug. 26, 1915	L-11	May 16, 1916
M-1	Sept. 14, 1915	Bridge	May 18, 1916
L-9	Oct. 27, 1915	Wilkes	Do.
Sampson	Mar. 4, 1916	Henderson	June 17, 1916
Wando	Mar. 7, 1916	Cuyama	Do.
L-10	Mar. 16, 1916	Davis	Aug. 15, 1916
Rowan	Mar. 23, 1916	L-6	Aug. 31, 1916
Pocahontas	Apr. 1, 1916	L-7	Sept. 28, 1916

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Proposals received for the construction of two battleships, "Nos. 43 and 44."

[Class 1: Hull and turbine-propelling machinery in accordance with the department's plans. Class 2: Hull and equipment in accordance with the department's plans; machinery, bidder's design.]

Bidder.	Class 1.	Class 2.	Time.	Speed.	Type of propelling machinery.
			Months.	*Knots.*	
Fore River Shipbuilding Corporation.	$7,638,000	.....	34	20.5	Yarrow boilers, Curtis turbines, high and low pressure ahead, high and low pressure astern, cruising turbines through reduction gear.
Do.	7,684,000	.....	34	20.5	Do.
Do.	7,750,000	.....	34	20.5	Do.
Do.	7,229,500	.....	34	20.5	Do.
New York Shipbuilding Co.	7,700,000	.....	34	20.5	B. & W. boilers, high and low pressure ahead, high and low pressure astern, cruising turbines through reduction gear.
Newport News Shipbuilding Co.	7,775,000	.....	40	20.5	Parsons turbines, high and low pressure ahead, high and low pressure astern, cruising turbines through reduction gear.
Do.	.....	$7,765,000	40	20.5	Curtis turbines, high and low pressure ahead, high and low pressure astern, and high and low cruising through reduction gear.

NOTE.—All bids for one vessel only. All of the above bids were conditional on the omission of important items from the department's specifications and material modifications in the usual contract terms.

The navy yard, New York, N. Y., has been designated as the yard at which battleship *No. 43* (*Tennessee*) will be built.

The navy yard, Mare Island, Cal., has been designated as the yard at which battleship *No. 44* (*California*) will be built.

* * * * * * *

D. W. TAYLOR,
Chief Constructor United States Navy, Chief of Bureau.

REPORT OF THE CHIEF OF THE BUREAU OF STEAM ENGINEERING.

NAVY DEPARTMENT,
BUREAU OF STEAM ENGINEERING,
Washington, D. C., October 12, 1916.

The appropriations made for the support of the bureau for the fiscal year 1916 were:

Bureau of Steam Engineering:		
Engineering	$7,742,973.00	
Engineering, urgent deficiencies	938,620.40	
		$8,681,593.40
High-power radio stations		400,000.00
Engineering experiment station, United States Naval Academy, Annapolis, Md.—		
Experimental and research work		60,000.00
Equipment of building		20,000.00
Salaries, Bureau of Steam Engineering		45,490.00
Funds available under joint appropriations:		
Increase of Navy, construction and machinery		20,664,459.00
Increase of Navy, torpedo boats		6,231,344.00

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NAVY YARD CONSTRUCTION.

The new construction carried on in the navy yards during the past year comprised the machinery for the battleship *Arizona* and the fuel ship *Maumee* at New York, the supply ship *Bridge* at Boston, the transport *Henderson* at Philadelphia, the destroyer *Craven* and the tug *Pocahontas* at Norfolk, the destroyers *Shaw* and *Caldwell* and the fuel ship *Cuyama* at Mare Island, and the tug *Wando* and ferryboat *Wave* at Charleston. Besides this, the machinery for several self-propelled oil barges, ash lighters, and freight lighters was completed at Portsmouth, Norfolk, and Mare Island.

The completion of the machinery of the *Maumee* was delayed while awaiting the passage of the naval appropriation bill providing additional funds for the purpose. At the date of this report it is practically completed and installed, and it is expected that the vessel will soon be in service.

Good progress is being made on the machinery of the *New Mexico*, building under contract, and it is believed that it will be completed within the time fixed in the contract.

The machinery of the *Arizona* was nearly completed on the 1st of July and is now in all respects ready for service.

DESIGN OF MACHINERY.

Plans and specifications were prepared for the machinery of battleships *Nos. 43* and *44*, the *Tennessee* and *California*, of destroyers *Nos. 69* to *74*, inclusive, and for fleet submarines *Nos. 60* and *61* of the 1916 program. No bids having been received for the latter vessels, the specifications were rewritten, modifying the requirements, and the contracts have since been awarded.

The increase in building carried on at navy yards has taxed to the utmost the clerical, drafting, and technical force of the bureau and the navy yards, and even after provision was made in the deficiency bill for additional draftsmen much difficulty was experienced in securing suitable ones on account of the demand from shipbuilding establishments consequent upon the large increase in the number of merchant ships under construction. By reason of this increase, however, it was possible to complete the design of the new gunboat and to prepare specifications for the coast submarines during the fiscal year, and at the date of this report the plans and specifications for all the vessels of the 1917 program have been completed. These comprise the scout cruisers, the battle cruisers, the destroyers, the hospital ship, the ammunition ship, and the 800-ton submarines. The machinery of the battleships and the fuel ship will be duplicates of preceding ships of the same class. Such a vast amount of work reflects the greatest credit on the officers and employees concerned and was possible of accomplishment only because of the increase in force and of the willingness of all to work overtime when necessary to meet the dates fixed for completion.

Besides the new work, plans and specifications were prepared for new propelling engines to replace the present engines in the battleship *North Dakota*, in the scout cruiser *Salem*, and in the destroyers *Henley* and *Mayrant*. This work was so far advanced that it was possible to advertise and obtain bids for all except the *North Dakota*

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before the passage of the appropriation bill, so that contracts might be entered into immediately upon its passage, and thus save several months in the time of delivery. Tne machinery of the *North Dakota* will be built at the New York Navy Yard.

In addition to the above much important and routine work has been carried on in connection with the upkeep of the machinery of the fleet, the most important being the preparation of plans and specifications for new boilers for the *Georgia*, *Virginia*, and *Tonopah*, and plans for propellers for a number of vessels under construction.

ELECTRICAL WORK.

The work of the electrical division has paralleled that of the design division in all matters affecting the electrical installations on new ships and the preparation of specifications and type plans therefor. Complete plans were also prepared for carrying out the changes recommended by the 1915 fire-control board and material assembled for doing the work when the ships are available.

Following the explosion in the submarine *E-2* of an Edison battery, exhaustive tests were made at the New York Navy Yard, under instructions issued by the bureau, to determine the suitability of several types of batteries submitted for test and in order to obtain reliable data regarding the volume and the character of the gas given off under different conditions. The facts developed will be of great value in deciding upon the type of battery to be used in future designs.

The production of high-power searchlights, which are procured under contract, has now reached such a stage as to give assurance of a supply for all new ships, and it is believed that the facilities will soon be such that conversion of old searchlights may be proceeded with. The estimate for this purpose is included in the estimates submitted.

Important improvements have been effected in the auxiliary lighting systems, in deck illumination, and in means of signaling, as well as in numerous small fixtures and accessories.

RADIO TELEGRAPHY.

Work in connection with the chain of high-power stations is progressing satisfactorily. Contracts were entered into for the radio equipment at San Diego and Pearl Harbor and for the radio and power equipment at Cavite, and while the general trade condition has caused some delay it is believed that the San Diego station will be in operation by the first of next year, and that the others will follow within a few months. All arrangements have been made for the erection of experimental wooden masts at Tutuila, Samoa, and for the supply of the necessary apparatus to secure communication with Pearl Harbor. At Guam contract has been entered into for the masts and for the equipment necessary for communication with Cavite. Improvement has also been made in the equipment at Arlington, with a view to securing improved communication with the Canal Zone.

The equipment of the stations at Boston, Great Lakes, Charleston, Key West, New Orleans, Guantanamo, San Juan, and Cordova, Alaska, has been so improved as to render those stations capable

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of communicating with vessels beyond the range of low-power stations, and also to relay messages across the continent. The station at Mare Island will be similarly equipped.

New medium-power stations are under construction at Puget Sound and Cordova, and plans are in preparation for a similar station in Porto Rico and for the relocation of the Cape Blanco station at Marshfield, Oreg.

The new station at Point Isabel, Tex., is in operation and has contributed to efficient communication with vessels in Mexican waters.

Distant control of stations, to permit simultaneous sending and receiving, has been established at Arlington, Mare Island, Boston, and Washington, and similar improvement will be made at Charleston, Key West, Puget Sound, and New Orleans. In stations thus equipped for transmitting with a large and a small set, with facilities for receiving simultaneously the signals coming in from similar sets, the capacity for handling messages is increased fourfold.

The direction-finding apparatus installed at Cape Cod as an aid to navigation has been productive of good results. Experiments are being conducted with similar apparatus at Fire Island.

Marked improvement has been made in the transmitting and receiving capacity of the more important vessels of the fleet, and this work will be continued as funds permit.

The manufacture at navy yards of receiving sets and of low-power transmitting sets has proceeded with very satisfactory results.

* * * * * * *

VESSELS UNDER CONSTRUCTION.

The most notable additions to the fleet during the year were the *Nevada*, *Oklahoma*, and *Pennsylvania*, the first of our oil-burning battleships. The trials of these ships were satisfactorily completed and all have joined the fleet. The other additions comprised 10 destroyers, 3 submarines, 1 destroyer tender, 1 submarine tender, and 1 fuel ship.

* * * * * * *

R. S. GRIFFIN,
Engineer in Chief, U. S. Navy,
Chief of Bureau.

The SECRETARY OF THE NAVY.

REPORT OF THE PAYMASTER GENERAL.

NAVY DEPARTMENT,
BUREAU OF SUPPLIES AND ACCOUNTS,
Washington, 30 September, 1916.

To: The Secretary of the Navy.
Subject: Annual Report.

As stated in the closing paragraph of last year's report, there should be no real difference between peace times and war times—between peace footing and war footing—with respect to ship supply.

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With the regular Navy, both afloat and ashore, habitually doing its utmost to keep the active fleet at all times symmetrically supplied, the shift over from peace to war conditions should not, in fact, produce the confusion that invariably accompanies radical changes in method; for, under such circumstances, there need take place merely an expansion incident to the orderly absorption of newly acquired units into an already existent and satisfactorily working system.

The first step in that direction was taken when the Navy Regulations were changed so as to prescribe that every fighting ship keep fully outfitted at all times—not with a month's requirements of one thing and two years' of another but with supplies of every kind so assorted that all ordinary items will last about the same length of time.

The next is to accumulate a reserve stock of necessary supplies so that, in time of need, it may be right at hand instead of on the dealers' shelves or even in transit. The getting of this reserve is well under way—the limit of progress being set by lack of stowage space.

For a long time the stock was kept down for reasons wholly financial; and storehouses were for the most part only such buildings as were left over from other purposes. The war in Europe has shown, however, that supplies (particularly those that require a long time to produce and of which commercial concerns do not keep large stocks on hand) are a military asset the value of which can not be measured in dollars and cents.

With the need for a reasonable reserve stock being so plain, the number and type of additional storehouses to be provided by the next appropriation bill becomes but a question of detail. As a matter of fact, it will take nearly as long to authorize, build and stock the necessary storehouses as it will to secure the ships already appropriated for.

In May 1915, on the initiative of the General Board and by advice from the Chief of Naval Operations, work was begun on the source of supply data—finding out where and from whom to buy and how much each concern can be counted on to furnish. The first thing to do is, of course, to determine what the Navy needs—and then to ascertain the source of supply to meet that need.

The nature of the products of all concerns regularly selling to the Navy is being recorded on cards showing for each item the quantity ordinarily kept in stock and ready for shipment within 2 days, what under normal conditions can be produced in 7, 14 and 30 days and the maximum production in 30 days. This information is being systematically secured by supply officers and by naval inspectors direct from the plants.

On account of conditions in the metal markets, the Navy's requirements of metals and manufactured steel, brass, zinc, copper and tin materials have, during the year, had to be further anticipated than in the past. Mills have been taking on such heavy orders that in many cases it has been impossible to get deliveries until long after the orders were placed.

As was to have been expected, the most noticeable advances in prices were on those materials for which the European demand was abnormally heavy.

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Quotations on lake copper for the period from 1909 to the outbreak of the war abroad averaged below 15 cents a pound. The average price for the fiscal year 1916 was 23 cents.

The price of steel bars at Pittsburgh is now two and a quarter times as high as it was January 1, 1915.

The average price of zinc for many years was 6¼ cents a pound. Twenty-seven cents was reached in June, 1915; but the market has had a general downward trend since that time, the price now being about 9 cents. The price of zinc affects the price of galvanizing, composition metals and zinc paints particularly.

Shellac, one of the principal components of ship's bottom paint, is 50 per cent higher now than in January 1915.

The cost of serge and flannel has increased about 70 per cent, this being largely due to the increased cost of dyes. The dye entering into a yard of serge cost, before the European war, about 10 cents; whereas it now costs about 80 cents.

Shoes are almost a dollar a pair higher.

The unusually high cotton market is felt in the cost of white drill which is now nearly twice what it was before the war.

The average time required to make awards of contracts during the year was 12 per cent less than during the best month of 1915; meanwhile the volume of business increased over 43 per cent.

In this connection the following is quoted from a letter just received from one of the largest concerns on the west coast which regularly deals with the Navy:

> We wish to take advantage of this opportunity of expressing our appreciation of your hearty spirit of cooperation and the prompt action you gave this entire schedule. Under exceptional market conditions such as are existing at the present time, your efficient manner in handling large propositions of this kind is of all importance to contractors and does much to create a keen competition for the business with a consequent saving for the Government.

It is understood that about 2,500 British merchant ships have been taken over by that Government for use as transports and for fleet supply. This, together with the withdrawal of the colliers of German and Italian ownership, has caused such a shortage in shipping that the rates from the United States to English and French ports are reported to have risen as high as 1,300 per cent on some items.

On account of this wholesale diversion of foreign ships from the usual trade channels, it has been impossible to make any shipments to the Orient except in naval colliers; the same being true of late with respect to shipments to the Pacific.

This situation regarding water transportation presented difficulties in connection with the large shipments of fuel which had to be made to Navy fuel depots at both nearby and distant points; and, had the stocks not been greatly increased just prior to and during the early months of the war, the shortage of merchant tonnage might have caused serious embarrassment.

Heavy shipments of coal were made to west coast stations during the first half of 1915; and even as late as August of that year a transportation rate of $4.20 per ton was obtained for the delivery of coal at the naval coal depot at Tiburon. It was anticipated that ocean rates would advance; and, by arranging for frequent charter-

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ings during those months when it was to the advantage of owners to get their vessels to west coast ports, large quantities of coal were delivered at fairly reasonable rates.

It finally became necessary, however, to replenish the stocks of fuel; and, rates being then abnormally high, Navy fuel ships were placed on the run to west coast stations with the result that the cost of transportation was much lower than commercial costs would have been.

During recent months there have been many instances in which the need for improvement in fuel storage and for additional colliers and tankers has been most marked. As it has become necessary from time to time to increase and distribute the various forces of the fleet, the shortage in naval fuel ships has become even more manifest.

The sudden advance in the price of fuel oil, gasoline and other products of crude petroleum has been the subject of much discussion, even to the extent of congressional inquiries; but, long before these investigations began, action had been taken toward laying in large stocks under the advantageous contracts then in force.

During the year, oil was purchased at 64 cents per barrel delivered at Port Arthur, Texas; and, prior to the expiration of those contracts, practically all tankage under Navy control was filled to capacity.

This oil, taken in bulk from the contractor's pipe line, cost the Government less than one-third of the price that would have been asked for the same oil delivered at the various fuel-oil stations under the prevailing market prices. At the end of June 1916 there was in storage more than half a million barrels. Navy tankers were used in delivering a large part of this.

For some time after the outbreak of the war, congested freight conditions led to embargoes which resulted in delays in delivery of material. By the cooperation of the transportation companies, however, this condition has been remedied; and definite action has been taken to provide for similar contingencies in the future by the provision contained in the naval act that:

> In time of war or threatened war preference and precedence shall, upon demand of the President of the United States, be given over all other traffic for the transportation of troops and material of war; and carriers shall adopt every means within their control to facilitate and expedite the military traffic. And, in time of peace, shipments consigned to agents of the United States for its use shall be delivered by the carriers as promptly as possible and without regard to any embargo that may have been declared; and no such embargo shall apply to shipments so consigned.

The standardizing of Navy specifications for stores and materials has gone steadily forward. Over 1,100 standard specifications are in force. These are revised as trade conditions occasion a change. There is a constant demand for them from business firms, contractors, railroad companies, municipal authorities, scientific institutions, civil and mechanical engineers, libraries and colleges.

The mailing list of prospective bidders contains the names of nearly 8,000 firms. Over 360,000 copies of the weekly Notice of Purchases were distributed during the year. These notices are arranged alphabetically according to the lines of business, and it takes but a moment for a bidder to see whether the Navy is in the market for anything in his line.

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The demand for bidding forms continues to increase. Approximately 71,000 requests for bidding sets were received; and the number of copies distributed to various purchasing officers located at yards and stations, including the number sent out to firms direct, aggregated 1,250,000.

In his annual report for 1888, Secretary of the Navy William C. Whitney said:

> * * * Naval brokers have for the most part disappeared and regular responsible dealers are becoming more and more contractors for these supplies. For a time it seemed impossible to dislodge them.

Secretary of the Navy Hilary A. Herbert, in speaking of the efforts then being made to further improve the purchase system, said in his annual report for 1896:

> * * * The outcome will undoubtedly be wider competition, lower prices, equally as good and in some cases a better quality of article. It is also expected that the labors of this board will go very far toward ridding the Navy of middlemen and professional contractors. * * *

The fight for direct dealing between producer and consumer, however, is by no means finished; for there still remain and constantly appear insistent commercial free-lances who seem to be under the impression that the Navy is seeking the services of outside purchasing agents instead of simply buying the goods direct as required by section 3722 of the Revised Statutes which provides that:

> * * * No person shall be received as a contractor who is not a manufacturer of, or regular dealer in, the articles which he offers to supply.

The records show that this restrictive statute was the outcome of a Civil War situation to which Secretary of the Navy Gideon Welles thus referred in his annual reports for 1864 and 1865:

> * * * Under the practice that has prevailed, the whole system has become tainted with demoralization and fraud by which the honest and fair dealer is too often driven from the market.
>
> The most efficient remedy for this state of things within the power of the department has been applied in the transfer of the few remaining agencies to paymasters who * * * perform their duties under the responsibility of their commissions. * * *

How effective this remedy proved to be is shown by the following extract from the 1899 annual report of Secretary of the Navy John D. Long with respect to the work of Paymaster General Edwin Stewart during the Spanish War:

> It is worthy of note that, notwithstanding the immense amount of supplies purchased immediately preceding and during the war and the necessity of expedition, the contractors were held to specifications, the prices paid were no higher than before the emergency arose and the work of the bureau was performed with the most gratifying efficiency and promptness.

When it is remembered that every doubtful dealer means unsatisfactory deliveries and consequent loss in fleet efficiency, it is obvious why the application of any candidate for admission to the bidding list must be and is being critically scrutinized.

For years past, the Navy has been buying many items of groceries under retail contracts providing for deliveries as required for issue to ships at the various yards and stations. All such items as

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will keep in store are now purchased in wholesale quantities. The new plan permits the purchase of large quantities for delivery at one time; and, as the quantities are exact, the speculative element which in former contracts tended to increase costs is eliminated.

Notwithstanding the unusual rise in the provision market, the cost of subsistence for the year has been kept below what it was before the European war began.

According to statistics compiled by the Department of Labor, there was an average increase of 5 per cent in the cost of 26 of the most commonly used foodstuffs during the two years of the war as compared with the two preceding years. Meanwhile the cost of the Navy ration during the fiscal years 1915 and 1916 averaged a little more than one-half a cent lower than for 1913 and 1914; so that, taking into consideration the rise in the provision market, the comparative cost of subsisting the Navy during the past two years was approximately $800,000 less than for a like period before the war. This is at the rate of something over a thousand dollars a day.

The causes are the regulation prohibiting the use of patent and experimental foods, the requirement that all provision contracts be awarded item by item to the lowest bidder on each, the improvement in the purchasing system whereby contracts covering delivery of all needed provisions are made by purchasing officers located at the ports usually visited by naval vessels and the hard and fast rule that a contractor once rightfully debarred is not restored to the bidding list—debarment being, of course, in no sense a punishment of the individual but simply a protection to the Government.

Any reduction in cost, however, at a sacrifice of quantity or quality would be so far outweighed by the consequent loss in naval efficiency that it could not, of course, be considered.

That the standard has been by no means lowered is shown by official reports from all sources, conspicuous among which is the following, dated August 29, 1916, from the Surgeon General of the Navy:

> I was prompted last year to write you a letter advising you concerning the excellent opinion expressed by the medical officers of our service on the work of your department and on the quality of your ration. I gave you a few samples of the many commendatory paragraphs of this tenor excerpted from annual sanitary reports. The reports of this year have been even more favorable, and I would repeat them here were it not that the repetition might seem monotonous. I can assure you, however, that no navy in the world is as well fed, as well clothed, its general welfare so thoroughly looked out for as that of the United States; and I am glad to offer you and the entire personnel of your corps my heartiest congratulations for the large share you have had in producing this well-being and its resultant contentment.

The regulations prescribing exactly what articles may be carried for sale in the ship's store have proved to be higly satisfactory, the stores being now conducted in a strictly businesslike manner and the accumulation of dead stock being reduced to a minimum.

Authority was given early in the year to survey all dead stock then in the ship's store, without having the amount of the loss caused by this survey charged against the crew's entertainment allotment. This was practicable in view of a small accumulated profit which had

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reverted to the Treasury but which, by a decision of the comptroller, was credited back to the profit fund.

In order that naval supply account stock which had become obsolete at certain yards might be advantageously used, each yard was some months ago directed to submit a list of material which might be classed as obsolete. These lists were consolidated and then distributed to all yards, so that stock that has remained inactive at one particular yard has been shipped to other points where it could be used. In addition to utilizing this stock, which in most cases had been purchased at a low price, the space thus vacated has become available for more active stock.

Work on the Standard Stock Catalogue, commenced over a year ago, has been continued with only such interruption as was from time to time caused by the pressure of other business; 31 of the 65 classes having thus far been completed.

The clothing factory at Charleston has, without difficulty, produced the required supply of the articles manufactured there at a considerably lowered cost to the enlisted men of the Navy.

In establishing the new yearly prices of clothing and small stores in January they were again made as near cost as possible, the enlisted men receiving the benefit of the surplus which had accumulated in the clothing and small-stores fund.

The separate purchasing offices formerly maintained in all navy-yard cities have been in most cases abolished, the purchasing and disbursing duties being assigned, respectively, to the supply and disbursing departments of the yards. The purchasing officer, being at the navy yard, is now in a position to consult with the heads of departments regarding material to be purchased; and much unnecessary correspondence, with consequent loss of time, is avoided.

The commanding officers of Naval Militia organizations remote from a supply yard have been authorized to obtain locally, by purchase after competition, expendable stores which can be economically secured. This has resulted in less cost for handling, packing and shipping supplies formerly furnished from the yards.

The time required to pay a public bill after it reaches the Disbursing Division has been shortened; and this feature of the work at navy yards has been improved. A new form of public bill has been adopted, combining the old form of inspection call and public bill; and the use of this consolidated form causes an appreciable decrease in clerical work at yards. During the month of July 1915, the daily average of public bills on hand awaiting payment was 978, the daily average payments being 101 bills. On June 30 of this year there were on hand unpaid but 11.

An open competitive examination for the appointment of Assistant Paymasters was held in December 1915. There were 100 applicants, of which 26 made the required average and 15 were commissioned; so that, for the first time since August 1912, the Pay Corps had its full authorized number of officers.

These newly appointed Assistant Paymasters have completed the course of instruction at the Naval Pay Officers' School and are now serving on board seagoing ships.

Under the recent naval appropriation act, officers of the Pay Corps of the Naval Militia are the disbursing and accounting officers for their organizations; and not only have they to keep the accounts

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and render the returns of the Naval Militia, but in time of stress they would be called into service to augment the Pay Corps of the regular Navy. It is highly essential, therefore, that they receive proper instruction in the duties which they are and will be required to perform.

To accomplish this, two sessions of the Naval Pay Officers' School have been ordered—the first for the instruction of accounting officers and the second for disbursing officers. There are now 13 Naval Militia accounting officers from all parts of the country and 1 from Hawaii undergoing instruction.

In August 1915, a hurry call came for 11 officers of the Pay Corps to go to Haiti to serve as Captains of the Port and Collectors of Customs at various places. Finding these officers was no easy task for, owing to the fact that there were then 13 vacancies in the Corps, every officer was needed just where he was; but, by taking at least 1 from every yard on the Atlantic coast, the 11 were selected and left for Haiti within 72 hours. One of these officers, Passed Assistant Paymaster Byron D. Rogers, died while on duty there.

After these officers had served about nine months in Haiti, all but 3 were relieved by Chief Pay Clerks, it being believed that they could carry on the work which had been begun and systematized by the officers of the Pay Corps whose services were urgently needed for regular Navy duty. The other 3 have since been relieved by civilian officials.

As the result of an examination held in December, 26 chief petty officers have been appointed Acting Pay Clerks under authority of the act of March 3, 1915; and all former Paymaster's Clerks who were entitled to appointment as Acting Pay Clerk, Pay Clerk or Chief Pay Clerk have been examined and, with the exception of the negligible few who failed to qualify, have received their warrants and commissions.

Wherever practicable, those clerks longest at sea have been transferred to shore duty and vice versa; and, whereas formerly one might perform all his duty at sea and another all his duty on shore, they now alternate between sea and shore duty in the same manner as other officers of the Navy.

As pointed out to the Committee on Naval Affairs and the Committee on Appropriations, the civil force is the very backbone of any permanent organization; and the general plan is to have all work possible performed by responsible civilian experts who stay as the officers come and go and who are just as much interested in the Government's work as is the commissioned personnel. Their work is not spectacular in any respect, but it is an equally important part of the Navy as a whole and is deserving of high appreciation.

Two essential steps have been taken toward completing the new system of cost accounting at Navy yards—inventorying the plants and classifying the operating accounts. The next, which is now being undertaken by critical examination of the records and reports of the past year, is to distribute the overhead expense to the cost of production on the basis of the value of the equipment used and the time employed instead of on the basis of direct wages.

This cost system is independent of the appropriation system, though of necessity interlocking with it—the appropriations being as it were the bank account from which the funds are drawn (each

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one of which must, of course, be accurately balanced as to its debits and credits) whereas the cost is simply a determination of where the money goes.

The new system is designed to make it possible to know the real production cost separately from the expense due to idle equipment and to furnish information of value to administrative officers.

Logistics has been the subject of constant study during the year. Many of the problems of fleet supply which in time of war would require immediate solution have been thoroughly considered, and plans for meeting the increased demands have been practically completed. The problems as laid down by the General Board have been given the careful attention which their importance demanded. This work has had to be carried on in addition to and in conjunction with the regular daily routine without appreciably increasing the force.

The present opportunity for study of supply problems abroad has been taken advantage of by sending to London on intelligence duty an officer of the Pay Corps who has had wide experience in supply administration.

There has been compiled a 30-day provision list by which it is possible to find out in a moment the quantities of all items of provisions necessary for a given number of men for any length of time. By its use cargo lists of provisions can be made up in a few minutes for the entire complement of a fleet of any size without first canvassing individual vessels and then consolidating the replies into an elaborate tabulation, as was heretofore required. These tables are now in use by supply officers afloat and ashore in meeting the needs of individual ships and of the fleet as a matter of peace-time routine.

A clothing list has also been compiled and printed, showing the requirements for from 1,000 to 100,000 men for 6 months (summer and winter) after they have been originally outfitted. While this, like the provision list, was prepared primarily for logistic purposes, it, too, is in use daily throughout the service and serves as an automatic requisition for the guidance of all concerned.

Both of these lists show the cubic capacity required to stow any given quantity of the articles they cover, making it practicable to readily determine the capacity of merchant ships for delivering these supplies to the fleet.

The stowage capacity of all fighting ships of the Navy has been ascertained, this information also being printed and distributed to the service. It has already proved useful in fitting out vessels for sea; and is a dependable guide for commandants in determining the supplies of all kinds which they would have to furnish in time of war and to commanders-in-chief in estimating the logistic situation of their commands.

Sources of supply of fuel in time of war have been canvassed and plans for collier and tank assignments at loading points have been tentatively adopted. A number of practical tests have been made of existing facilities at the various yards for coaling and oiling battleships and destroyers, war conditions being simulated as far as practicable in order to obtain data for intelligent criticism. The results have shown not only the relative efficiency with which these operations were conducted but also wherein improvements might be made to equipment or in methods.

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Obtaining sufficient merchant ships for naval use in time of stress enters very largely into the problem of fuel supply; and the listing of ships suitable for refueling the fleet and for other purposes has steadily progressed in accordance with the general logistic plans.

The most expeditious rail and water routes from supply centers to delivery points and from naval magazines to tidewater have been determined upon. Rail facilities for shipment of heavy guns from the naval gun factory have been inquired into and the rolling stock of all lines capable of carrying the largest guns has been inventoried. Merchant transportation by water from all east coast yards to various points on the Atlantic seaboard and Gulf coast have been investigated with a view to listing ships and recording their schedules.

Instructions were issued to all yards to prepare detailed plans for distributing and increasing the personnel of the supply and disbursing offices in time of emergency to provide for a three-shift schedule. This has been done and the plans submitted by all yards are now being standardized.

As long ago as December 1820, the Honorable John C. Calhoun, Secretary of War, said:

> * * * To prepare the country to meet a state of war with honor and safety, much must depend on the organization of our military peace establishment. * * * To give such an organization, the leading principles in its formation ought to be that at the commencement of hostilities there should be nothing either to new model or to create. The only difference, consequently, between the peace and war formations of the Army ought to be in the increased magnitude of the latter and the only change in passing from the former to the latter should consist in giving to it the augmentation which will then be necessary. * * *

Whether it be Army or Navy and whether in 1820 or 1916, the fact remains the same—the only plans worth while are those made well in advance and put to practical test in every-day use; in other words, to live logistics rather than merely dreaming it.

Every effort is being made to do just that.

SAMUEL MCGOWAN.

REPORT OF THE SURGEON GENERAL.[1]

DEPARTMENT OF THE NAVY,
BUREAU OF MEDICINE AND SURGERY,
Washington, D. C., October 1, 1916.

To: Secretary of the Navy.

Subject: Annual report for fiscal year 1916.

The following report of the activities of the bureau is submitted.

During the past year there has been an increase in the admission and death rates over the preceding year. The increased admission rate is not accounted for by any alarming increase or epidemic of disease, or occurrence of extensive casualty or engagement. The mainly responsible factors are tonsillitis, venereal diseases, malaria, mumps, and bronchitis, and the comparatively slight increase in the

[1] All statistics cover the calendar year 1915.

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death rate, with a total of only 7 deaths from the above-mentioned diseases, indicates that the total harm to the service has not materially increased.

Term.	Per 1,000 of personnel.		
	Admissions and readmissions, all causes.	Deaths.	Total sick days.
Average, years 1901 1910	897.35	5.38	10,871.12
1912	787.46	4.08	9,449.39
1913	760.03	3.82	10,041.41
1914	886.58	4.18	10,862.28
1915	955.91	4.48	11,402.17

Among the major classified groups of diseases that show an increase in total damage are the following:

Diseases of the digestive and respiratory systems, diseases of infective type (venereal and nonvenereal), diseases of the eye, and wounds and other injuries.

Among the more important of the special diseases that show an increase are the following:

Bronchitis, acute.
Cerebrospinal fever.
Cholangitis, acute.
Dengue.
Gastroenteritis.
Goiter.
Gonorrheal infections.
Hemorrhoids.
Malaria.
Mumps.
Myopia.
Orchitis.
Rheumatism.
Scarlet fever.
Syphilis.
Tonsillitis.
Typhoid.

A decrease is noted in diseases of the circulatory, genito-urinary (nonvenereal), motor, and nervous systems, ear, and mind, and the following special diseases:

Abscess of lymph node.
Appendicitis.
Arthritis, chronic.
Chancroid.
Diphtheria.
Dysentery, bacillary.
Epididymitis.
Epilepsy.
Hernia.
Influenza.
Measles.
Pes planus.
Pharyngitis.
Pleurisy.
Pneumonia.
Scabies.
Tuberculosis.
Valvular disease of heart.

Among injuries drowning is increased from 42 to 51, while gunshot injuries are decreased from 148 to 63. Poisoning by alcohol shows a decrease, that by lead an increase.

DISEASES OF SPECIAL INTEREST.

The death rate, 4.48 per 1,000 of personnel, while higher than the preceding three years, is lower than the average for the 10 years from 1901 to 1910. The total death rate for the registration area of the United States, for the census year 1910, was 17.8 per 1,000 of our population. This, of course, includes all from infancy to old age, but even for the ages from 20 to 29 years, which would approximate fairly closely the average naval age limit, the mortality tables give 8 per 1,000 as the incidence of death. This includes both sexes, and would be appreciably higher if quoted for males alone.

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Thus we have roughly death rates of 8 plus per 1,000 and 4.48 per 1,000 as the respective rates for the young men of our country, the larger representing the risks incurred in the ordinary hazards of farm or city life, the lesser representing the peace-time losses while serving their country, and while under the constant watchful care of the medical department of the service.

I doubt if the families, parents, or guardians of the young men who enter the Navy, realize how carefully guarded as to health conditions these young men are. No institution of private training is so zealous for the well-being of its charges, or so watchful for the preservation of its own good name as is the Navy. A constant pride is exhibited by our medical officers in maintaining health and sanitation on the ships or stations under their care, and constant efforts are being exerted to provide further safeguards. The city or country practitioner is not called in to examine into the habits of life and knowledge of or regard to sanitary matters exhibited by his patients, nor does he so, unsolicited. But with us half of our duties are those of the uninvited sanitarian, and if the individual is neglectful not only of his own safety, but of the community good, advisory and, if necessary, disciplinary measures are soon invoked.

The leading causes of death for the last three years in the Navy are as follows:

	1915	1914	1913
Drowning	51	42	32
Tuberculosis, all forms	36	38	30
Pneumonia, all forms	22	33	21
Burns	16	6	12
Wounds, gunshot	13	30	19
Nephritis, all forms	13	13	8

It will be seen that the deaths are increased over 1914 in only two noteworthy classifications, both of these being injuries, i. e., drowning and burns. The deplorable loss of the *F–4* accounts for 21 of the deaths by drowning, leaving only 30 for the usual minor casualties due to carelessness in boating, swimming, etc. Aside from the above-mentioned loss of the *F–4*, therefore, it can be considered that a material increase in safety and avoidance of this hazard was achieved during the past year, as the 42 deaths from drowning in 1914 were the results of no major calamity.

Burns are responsible for 16 deaths, eight of these occurring on the U. S. S. *San Diego* and three on the U. S. S. *Decatur;* both of these accidents were boiler explosions.

Gunshot wounds, with resultant deaths, are naturally decreased from the preceding year, which included the Vera Cruz casualties, and are well below what may be considered a normal average in preceding years.

It is noteworthy that for the past years three main causes of death appear predominantly over the others, the three being drowning, tuberculosis, and pneumonia; but I am glad to reiterate that upon analysis each one of these shows encouraging improvement over the preceding year.

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Disabilities having the greatest number of sick days during 1915 as compared with the years 1914 and 1913.

Disease.	Sick days, 1915.	Relative standing.		
		1915	1914	1913
Tuberculosis, chronic pulmonary	71,360	1	1	2
Syphilis	65,682	2	2	1
Gonorrhea (urethral)	35,404	3	3	3
Tonsillitis	25,174	4	4	7
Mumps	24,781	5	6	5
Appendicitis	20,828	6	5	4
Influenza	20,787	7	15	15
Bronchitis	19,818	8	7	11
Hernia, inguinal	15,573	9	8	8
Malaria	12,150	10	11	12
Otitis media	11,114	11	10	10
Chancroid	10,521	12	9	9
Pleurisy	9,304	13	13	13
Pneumonia	9,156	14	14	14
Measles	7,472	15	12	6

In compiling the above table several classes that would have come within the limits have been omitted as being comparatively unimportant in significance or scientifically loose in application. These are (*a*) gonorrheal infections other than urethral (27,889); (*b*) rheumatism (all forms) (20,539); (*c*) abscess (unqualified) (13,514); (*d*) chancroid of lymph node (11,443); and (*e*) tuberculosis (other forms) (10,873).

VENEREAL DISEASES.—Venereal diseases *combined* will, of course, head such a list by a wide margin. During the statistical year of 1915 the primary admission rate for the various venereal diseases has shown but little change over the preceding years. The rate for chancroid dropped from 43.37 to 32.31 per 1,000, a rate more in keeping with the years 1910, 1911, and 1912. The rate for gonorrhea was 87.91 per 1,000 as against 84.94 per 1,000, but lower than the years 1909, 1910, and 1912, when the rate was 102.51, 103.90, and 92.15, respectively. The admission rate for syphilis was 21.35 per 1,000 against 19.83 per 1,000. While this rate was an increase over the statistical year of 1914, it was lower than for the preceding five years, the rates for those years being 25.81, 22.54, 27.11, 23, and 21.94.

Admission rate for venereal disease.

Year.	Average complement.	Chancroid.		Gonorrhea.		Syphilis.	
		Admissions.	Rate.	Admissions.	Rate.	Admissions.	Rate.
1903	37,248	396	10.63	1,032	27.70	816	21.90
1904	40,555	542	13.36	1,512	37.28	880	21.69
1905	41,313	538	13.00	2,085	50.46	981	23.73
1906	42,529	733	17.23	2,640	62.07	1,147	26.96
1907	46,336	554	11.95	2,274	49.07	881	19.01
1908	52,913	665	12.56	3,015	56.98	1,001	18.91
1909	57,172	1,573	27.51	5,861	102.51	1,476	25.81
1910	58,340	1,968	33.73	6,062	103.90	1,315	22.54
1911	61,399	1,929	31.41	5,658	92.15	1,665	27.11
1912	61,897	2,169	35.04	5,403	87.29	1,424	23.00
1913	65,926	1,855	28.13	5,320	80.69	1,447	21.94
1914	67,141	2,908	43.31	5,703	84.94	1,332	19.83
1915	68,075	2,200	32.31	5,985	87.91	1,454	21.35

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Chancroid.

Year.	Average complement.	Admissions.	Invalided or died.	Admission rate.	Days.	Daily average.	Daily average; correct.	Damage.	Damage; correct.
1903	37,248	396	0	10.63	7,644	20.9424	19.8575	20.94	.....
1904	40,555	542	4	13.36	7,661	20.8852	19.4043	22.88	.....
1905	41,313	538	2	13.00	5,469	14.9385	13.5095	15.98	.....
1906	42,529	733	0	17.23	6,562	17.9726	15.9698	17.97	.....
1907	46,336	554	0	11.95	6,311	17.2904	15.7726	17.29	.....
1908	52,913	665	0	12.56	6,570	17.9508	16.1338	17.95	.....
1909	57,172	1,573	3	27.51	9,539	26.1342	21.8246	.....	23.32
1910	58,340	1,968	1	33.73	9,975	27.3287	21.9369	.....	22.43
1911	61,399	1,929	0	31.41	12,547	34.3753	29.0904	.....	29.09
1912	61,897	2,169	0	35.04	12,634	34.5191	28.5928	.....	28.59
1913	65,926	1,855	0	28.13	9,018	.....	24.7068	.....	24.70
1914	67,141	2,908	1	43.31	14,749	.....	40.4082	.....	40.90
1915	68,075	2,200	0	32.31	10,521	.....	28.8300	.....	28.83

Gonorrhea.

Year.	Average complement.	Admissions.	Invalided or died.	Admission rate.	Days.	Daily average.	Daily average; correct.	Damage.	Damage; correct.
1903	37,248	1,032	4	27.70	11,643	31.8986	29.0715	33.89	.....
1904	40,555	1,512	15	37.28	14,953	40.8551	36.7240	48.35	.....
1905	41,313	2,085	11	50.46	15,137	41.4712	35.7589	46.96	.....
1906	42,529	2,640	7	62.07	17,958	49.2000	41.9671	52.09	.....
1907	46,336	2,274	8	49.07	13,912	38.1150	31.8849	42.11	.....
1908	52,913	3,015	14	56.98	18,229	49.8060	41.5683	56.80	.....
1909	57,172	5,861	33	102.51	28,801	78.9068	62.8219	.....	79.32
1910	58,340	6,062	17	103.90	31,813	87.1589	70.5506	.....	79.04
1911	61,399	5,658	26	92.15	33,946	93.0027	77.5013	.....	90.49
1912	61,897	5,403	26	87.29	35,140	96.0109	81.2486	.....	94.24
1913	65,926	5,320	27	80.69	33,204	.....	90.9698	.....	104.46
1914	67,141	5,703	10	84.94	36,218	.....	99.2273	.....	104.22
1915	68,075	5,985	11	87.91	35,404	.....	102.494	.....	107.99

Chancroid showed an improvement over the preceding year. The admission rate was not only less but the total sick days dropped from 14,749 to 10,521, the daily average of patients dropping from 40.40 to 28.83 and the damage rate dropping from 40.90 to 28.83.

Syphilis.

Year.	Average complement.	Admissions.	Invalided or died.	Admission rate.	Days.	Daily average.	Daily average; correct.	Damage.	Damage; correct.
1903	37,248	816	132	21.90	34,112	93.4575	91.2219	159.45	.....
1904	40,555	880	125	21.69	32,389	88.4945	86.0901	150.99	.....
1905	41,313	981	97	23.73	39,632	108.5808	105.8931	157.08	.....
1906	42,529	1,147	91	26.96	41,248	113.0082	109.8657	158.50	.....
1907	46,336	881	106	19.01	32,656	89.4684	87.0547	142.46	.....
1908	52,913	1,001	118	18.91	36,645	100.1229	97.3878	159.12	.....
1909	57,172	1,476	171	25.81	49,647	136.0191	131.9753	.....	217.47
1910	58,340	1,315	118	22.54	47,893	131.2136	127.5890	.....	186.58
1911	61,399	1,665	84	27.11	66,210	181.3972	176.8356	.....	218.83
1912	61,897	1,424	75	23.00	56,759	155.0792	151.1885	.....	188.68
1913	65,926	1,447	74	21.94	62,630	.....	171.5890	.....	208.58
1914	67,141	1,332	51	19.83	53,016	.....	145.2493	.....	170.74
1915	68,075	1,454	63	21.35	65,682	.....	179.9500	.....	211.44

Gonorrhea showed but very little change over the preceding year. The admission rate increased from 84.94 to 87.91, a lower rate than for the years 1909, 1910, and 1911. The daily average of patients increased from 99.22 to 102.49, but the complement of the Navy

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was somewhat larger and the damage rate was slightly lower than for the preceding four years.

The rate for syphilis, likewise, has shown but little change. The past 2 years have given the lowest invalid rate in the last 12 years or more. The daily average of patients increased from 145.24 to 179.97. The damage rate showed some increase over the preceding years, but was lower than for the years 1909 and 1911.

Considering the experience with primary venereal diseases and sequelæ, the total number of admissions was less than for the preceding year, being 10,318 as against 10,932. The total number invalided or died was the lowest in many years, amounting to 101. The admission rate was 151.56, as against 162.82 for the preceding year, and lower than for the years of 1909, 1910, 1911, and 1912. The total number of sick days was 150,939, being only exceeded by the year of 1911, when the total number of sick days was 161,358. The corrected damage rate was 464.02, being only exceeded by the years of 1909 and 1911.

Primary venereal diseases and sequelæ.[1]

Year	Average complement.	Admissions.	Invalided or died.	Admission rate.	Days.	Daily average.	Daily average; correct.	Damage.	Damage; correct.
1903	37,248	3,951	212	106.07	98,984	271.189	260.364	377.18	.....
1904	40,555	4,817	234	118.77	107,007	292.368	279.207	409.36	.....
1905	41,313	5,293	163	128.11	105,099	287.668	273.441	369.16	.....
1906	42,529	6,348	144	149.26	116,411	318.901	301.542	390.90	.....
1907	46,336	5,528	153	119.30	99,126	271.578	256.430	348.07	.....
1908	52,913	6,491	186	122.67	105,142	287.273	269.538	380.27	.....
1909	57,172	10,961	287	191.71	136,761	374.687	344.675	.....	488.15
1910	58,340	11,071	191	189.76	135,507	371.252	340.920	.....	436.42
1911	61,399	10,827	185	176.33	161,358	442.076	412.413	.....	534.57
1912	61,897	10,495	153	169.55	146,135	399.275	370.601	.....	447.10
1913	65,926	9,434	138	143.09	141,378	.....	387.336	.....	456.33
1914	67,141	10,932	118	162.82	142,981	.....	391.728	.....	450.72
1915	68,075	10,318	101	151.56	150,939	.....	413.531	.....	464.02

[1] Includes only: (1) Gonorrhea, (2) chancroid, (3) syphilis, (4) arthritis gonorrhoica, (5) epididymitis, (6) adenitis inguinalis, (7) prostatitis, (8) orchitis, (9) ophthalmia gonorrhoica.

TUBERCULOSIS.—A most satisfactory condition is noted here. With an *increased* naval personnel, the actual number of cases admitted is well below the lowest previous year and the rate per 1,000 is markedly reduced.

Year.	Admitted.		Deaths.	Sick days.
	Number.	Rate per 1,000.		
1909	311	5.43	40	58,984
1910	349	5.98	44	65,443
1911	319	5.19	48	64,668
1912	264	4.26	32	57,723
1913	325	4.92	30	67,423
1914	295	4.39	38	80,237
1915	253	3.71	36	82,233

The total of deaths is also below the average for the previous years, but, as is to be expected of the most frequent and widespread of the major infections, is still undesirably high.

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In this country 9 per cent of all deaths are due to tuberculosis. The toll falls heaviest during the period of life of greatest usefulness—thus 30 per cent of all deaths between the years of 15 and 60 are due to pulmonary tuberculosis alone. Our mortality of 36 is 11 per cent of the total deaths of the Navy during 1915. While this is a very satisfying and commendable comparison, much greater improvement is to be desired. The selected nature of our personnel, the rigid physical examinations upon entrance and transfer should give us and preserve for us a specially healthful type and should make our results far exceed those in the ordinary walks of life. And as pointed out, this result is achieved with great credit to all concerned. But, as indicated in my report last year, naval life afloat is far from hygienically perfect, and with the crowded conditions existing there, even under the most vigilant supervision and constant care, most favorable conditions are furnished for the propagation of the disease. Happily this is a well-recognized fact, and all concerned are striving to the end that will provide a maximum of fresh air, light, and space.

The Naval Hospital, Las Animas, Colo., receives practically all of the cases of tuberculosis that develop within the Navy, and this institution shows an improvement in its statistics that is very creditable. The total number of cases of tuberculosis treated during the year was 431—a decrease of 21 from 1914—of which 231 remained from the previous year; 200 were admitted, 207 discharged, and 224 were continued to the next year. The total sick days for the hospital as well as for the service at large are increased in both cases, despite a reduction in total admissions. This increase is due to an increase in the average duration of the stay of each patient in the hospital from 254 sick days in 1914 to 318 in 1915. The number of deaths at the hospital during the year was 36, a decrease of 8 as compared with 1914. Of these, 1 was a first-stage case, 9 were second-stage, and 26 third-stage. Eight of the third-stage deaths had been in the hospital less than a month at time of death.

The annual report of the commanding officer of the hospital notes an interesting feature in connection with results from treatment as evidenced by the sputum examinations:

Of the 67 cases which were discharged during the year as first-stage cases, 28, or 40.9 per cent, were negative for tubercle bacilli on admission and remained so on discharge; 20 cases, or 29.8 per cent, were positive on admission and negative on discharge.

Of the 88 cases discharged during the year as second-stage cases 22, or 25 per cent, were negative on admission and remained so on discharge; 13, or 14.7 per cent, were positive on admission and negative on discharge.

Of the 46 cases discharged during the year as third-stage cases, 3, or 6.5 per cent, were negative on admission and remained so on discharge; 2, or 4.3 per cent, were positive on admission and negative on discharge.

TONSILLITIS.—This disease is always prevalent under service conditions of overcrowding. Bacterial throat infections are easily disseminated from person to person when the cubic air space per individual reaches the low limits sometimes unavoidable aboard ship. The overcrowding, imperfect ventilation, damp and cold conditions of the winter months, together with the frequent habits of using the deck for sleeping when off duty, provide most unsatisfactory sanitary

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conditions. This is especially noticeable when a vessel is undergoing overhaul or in dry dock, at which time, owing to the stress of work being done, the lack of cleanliness, and the relaxing of the usual discipline, respiratory affections soon become prominent.

Happily, it is noted that in battleships of the newer types respiratory affections appear less than on the older ships, and cruising conditions are particularly more favorable. The tendency of modern ship construction is gradually taking cognizance of a better ideal of hygiene, and diseases of the respiratory tract will be the first to feel the betterment.

CONTAGIOUS DISEASES.—There were 1,053 admissions and 24,781 sick days from mumps; 308 admissions, 3 deaths, and 7,472 sick days from measles; 61 admissions and 2,430 sick days from scarlet fever; 100 admissions and 921 sick days from German measles; 42 admissions and 712 sick days from chickenpox; 38 admissions, 1 death, and 1,401 sick days from diphtheria; and 5 admissions, 1 death, and 211 sick days from smallpox. It will be noted from the table on page 7 that mumps consistently maintains its place as a leader, ranking fifth in 1913 and 1915 and sixth in 1914. Owing to the comparative slightness of the symptoms exhibited, early detection and isolation is more difficult than with the more serious diseases. Measles appears in a better light than in previous years, and markedly so compared to 1913, when it ranked ahead of tonsillitis in its damage to the service. There are, however, 3 deaths during the current year, as compared with none during 1914, and 1 in 1913. Diphtheria provides the first death from that disease since 1911. Admissions are notably decreased from previous years, 1913 showing 73 and 1914 showing 59, as compared with 38 in 1915. Smallpox shows the same number of admissions and deaths as in 1914, materially better than the 38 admissions and 3 deaths in 1913, discussed at some length in my 1914 report. The elaborate precautions observed in our service in maintaining an active immunization of our personnel against variola are indicated by the fact that 63,747 vaccine points were forwarded to medical officers on requisitions during the past year, and by the following paragraph from the changes in Naval Instructions of date of July 15, 1915:

3211. (1) Recruits shall be vaccinated within 24 hours after their arrival on a receiving ship or at a barracks. In case of failure the operation shall be repeated in eight days. If the second vaccination is not successful, it shall be repeated at the first opportunity with a vaccine of assured potency. The only acceptable evidence of successful vaccination is a *pitted* scar following vaccination. Results of vaccination shall be recorded on the health record and reported on the quarterly report of sick.

(2) No recruit in the Navy or Marine Corps shall be transferred from a training station, receiving ship, or barracks, or other rendezvous, until the medical officer is satisfied that the man is protected against smallpox.

(3) Every enlisted man of the Navy or Marine Corps shall be vaccinated upon reenlisting, or extending enlistment, unless (a) he has two *pitted* vaccination scars, or (b) shows evidence of a previous attack of smallpox.

(4) Every officer upon appointment should be vaccinated immediately upon reporting at his first station for duty and the fact entered on his health record. Revaccination should be performed at least once in every seven years thereafter unless he has two *pitted* vaccination scars or evidence of a previous attack of smallpox. The responsibility for revaccination shall rest upon the medical officer making the annual physical examination required by I 709 (5). If it is impracticable for this medical officer to perform the vaccination he shall notify the proper medical officer, through official channels, so that it may be carried out. The medical officer who performs the vaccination shall note the result of the vaccination on the officer's health record.

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APPENDICITIS.—Appendicitis leads the list of affections demanding operative procedure. There were 623 admissions and 20,828 sick days attributable to this, an improvement, however, over preceding years. Five hundred and four operations were performed. Deaths numbered 7.

INFLUENZA.—The influence of the pandemic of this disease occurring last year is shown in the following figures offering comparison with the two preceding years.

Year.	Admissions.	Sick days.
1913	998	5,008
1914	1,520	6,989
1915	4,133	20,787

It is noted that the admissions and sick days are both increased fourfold over 1913. Its relative rate among the diseases listed on page 7 jumped from last place to seventh, and it represented 9 per cent of the total admissions for the year. The present epidemic followed the usual course from east to west, undoubtedly aided in its origin in eastern Europe by chaotic war conditions, and its dissemination also furthered by the same means.

It is of interest to quote the following from the annual report of the Surgeon General of the Navy for the year 1891, regarding the last great pandemic, that of 1899–90:

"This disease presents some very interesting facts in connection with the sick of the Navy for the year 1890. One thousand four hundred and twenty-two cases were reported, *one-tenth* of the whole number admitted to the sick list during the year, representing a loss to the service of 7,719 days, or an average of 5 plus days for each case. The disease was not confined to any locality or to the force afloat, but prevailed alike on our vessels in foreign waters and at home, in the hospitals, and at shore stations. It is more remarkable to note that only 1 death occurred out of 1,422 cases reported."

MALARIA.—Malaria provided 1,205 admissions, 12,150 sick days, and 3 deaths, as compared with 1,170 admissions, 10,607 sick days, and 1 death in 1914, advancing slightly in its relative standing. The greater part of this incidence occurs among the personnel of our marine expeditionary forces ashore on tropical duty, as at present in Haiti and in Santo Domingo. During the present calendar year, and not embraced within the statistical period of this report, a number of cases of a severe hemorrhagic type have occurred among our forces in Haiti.

PNEUMONIA.—While occupying a prominent position among the causes of death, following only drowning and tuberculosis, pneumonia stands fourteenth on the list on page 7, having held this same relative position for the past three years. There were 288 admissions, 9,156 sick days, and 22 deaths, as compared with 292 admissions, 9,488 sick days, and 33 deaths in 1914, and 189 admissions, 6,110 sick days, and 21 deaths in 1913. The mortality rate will be noted to be markedly reduced, as the 1915 rate is but 7.6 per cent, the 1914 and 1913 rates both being 11 plus per cent.

TYPHOID FEVER.—From the following table it will be seen that the remarks which I made in my report of last year concerning the reduc-

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tion in menace of typhoid are borne out by the statistics of the year since. The admissions are only appreciably higher than in 1914, 18 as to 13; rate per 1,000 and sick days also little changed. There were 5 admissions and 402 sick days from paratyphoid, as compared with 9 admissions and 355 sick days in 1914. One death from typhoid occurred, whereas none occurred in the previous year. With an average complement of 68,075, the one death in the last two years represents an incidence of 0.7 per 100,000, as compared with the figures prepared by the Journal of the American Medical Association for 1915 (based on the population of our larger cities), of 8.65 per 100,000.

Year.	Admitted.		Died.	Sick days.
	Number.	Rate per 1,000.		
1909	189	3.30	17	10,378
1910	193	3.30	10	9,426
1911	222	3.61	15	14,024
1912	57	.92	2	5,234
1913	22	.33	4	1,657
1914	13	.19	0	1,027
1915	18	.26	1	1,031

Of the 18 cases, 3 are of erroneous diagnosis, change in diagnosis to paratyphoid having been made in 2 cases and to influenza in 1 case, leaving 15 apparently authenticated new cases of typhoid. Of these 15, 7 had not had the inoculations for various reasons—i. e., 4 on account of histories of previous attacks of typhoid, 2 in recruits who were enlisted during the incubation period of the disease, and 1 who, apparently through carelessness or ingenuity, had escaped the medical officer.

Thus we have 8 left who incurred typhoid despite the protective inoculations, and these are arranged in the following table to show the length of time in each case between the inoculations and the onset of the disease:

	Period of protection.
Case 1	3 years 4 months.
Case 2	2 years 9 months.
Case 3	2 years 8 months.
Case 4	2 years 5 months.
Case 5	3 years 6 months.
Case 6	3 years 8 months.
Case 7 [1]	4 years 3 months.
Case 8 [2]	7 months.

While this table represents in itself a small number of cases, it stands, however, for the incidence of typhoid in a personnel of 68,000 protected by four-yearly inoculations of a killed culture of typhoid organisms.

Disregarding case No. 8 for obvious reasons, we have a most interesting commentary on the duration of this artificial immunity, and an indication that the present four-year period needs material shortening. It can not be a mere coincidence that no cases developed within the first two years, and the fact that they did not speaks volumes for the efficacy during this time. Nor in the first

[1] Died. [2] Diagnosis doubtful. Received inoculations in 1912 and 1915.

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half of the third year do we find a case until the twenty-ninth month, and only three under a full three-year period. The average is three years and two months, and the only one going over the four-year period, case No. 7, succumbed to the disease.

Theoretically, results would have been 100 per cent perfect in the prevention of disease if the period had been two years, and only slightly less so if a three-year period were followed.

The adoption of the latter is being considered, one of its drawbacks being necessarily an abandonment of the coincidence of reinoculation with reenlistment.

The menace of paratyphoid is at present so slight in our service that a mixed vaccine has not as yet been adopted. This, however, is being done by practically all the warring powers, using not only typhoid but paratyphoid A and B.

TYPHUS FEVER.—Specific reference is made to this disease because of its revival as an epidemic scourge during the present war, and its probable rôle as an important menace to the service should this country be embroiled. Its occurrence in the Navy at present is negligible, showing, however, a slight increase in the last two years—5 cases and 1 death in 1914, 4 cases and 1 death in 1915, there having been no cases in 1913.

The tremendous benefit of modern sanitary knowledge is nowhere more convincingly demonstrated than in our very recently acquired ability to handle with scientific accuracy this dreaded scourge. The work of Nicolle in demonstrating the transmitting agent and that of Plotz in isolating the infecting organism came at a miraculously opportune moment. Routine quarantine procedure in the face of the present great conflict, with numbers of scattered foci of infection, would have been comparatively helpless in carrying out the energetic repressive measures that have achieved such quick and notable success, particularly in Serbia, where the infection was in full flame before these measures were inaugurated.

SANITARY CONDITIONS AND MEASURES AFLOAT.

The problem of solving the unsatisfactory conditions connected with the use of the combined heating and ventilating system in our newer ships was discussed in my report of last year. The following remarks from the annual sanitary reports of medical officers of the latest additions to our battleship fleet bear out my remarks.

The fleet surgeon on the U. S. S. *Wyoming* is quoted as follows: "The indirect combined system installed on the newer ships has been much criticized because, as installed, it furnishes parched air, which is certainly somewhat injurious. A humidity of about 70 per cent is desirable in respired air. If the outside air be at 40 F., and even if it should have 100 per cent of saturation at that temperature, which it has not, such air heated to 70° and delivered to living spaces without additional moisture will have a humidity of only 36 per cent. When, with a temperature of 40° the outside air has a normal average humidity of 70 per cent, the heated air under the same conditions at 70 F. will have a humidity of 25 per cent. Some device should be developed for humidifying the heated air in the trunk. It would seem that this could be effected by a water spray actuated by a steam jet. I think this should be tried, as the indirect system where proper

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provision has been made for supplying moisture is certainly superior from a sanitary standpoint to any system of direct radiators, whether steam, hot water, or electric, as with none of these can any effective moisture supply be devised.

"The naval service at large, both afloat and ashore, is much given to our national vice of overheating. If this tendency were curbed by a general order, our difficulties in handling the parched-air problem would disappear along with our present bad habits. An educational campaign on this subject is needed both in and out of the service. Even though we are confronted with the conditions incident to this vice in theatres, railways, hotels, and restaurants, this does not constitute an excuse for heedlessness and indifference to the matter in our own domain, and we should cease to treat ourselves and our sailors as hothouse plants to their decided injury. Body heat is properly maintained by food, and by clothing which prevents undue dissipation of the natural heat of the body. If a man is properly bathed, clothed, and fed it is not necessary in order to maintain his body heat to place him in an oven and to make him breathe parched air. The lack of any intelligent interest in this matter on the part of most medical officers is to be reprehended. Most of them accept conditions as they find them and fall in with the crowd and follow it instead of endeavoring to lead and teach it. They know that cool, fresh, natural air has been found good for sick lungs, but it does not seem to occur to them that it may be equally good for sound ones."

The medical officer of the U. S. S. *Arkansas* has the following:

"The ventilation, however, can not be considered independently of the heating system since fresh air is taken in by the blowers, heated (when necessary) by passing over steam coils, and then delivered by blowers through ducts to the various compartments, entering through the McCreery or other terminals. This combined ventilating and heating system is far from satisfactory. During winter weather fresh air is taken in at low temperature and capable even at saturation of carrying a comparatively small amount of water vapor. This air is heated (and expanded), thereby greatly reducing the relative humidity of air finally supplied to the living spaces. For instance, even if air were saturated at 40 F. it would contain 2.86 grains of water (vapor) per cubic foot, and when heated to 70 F., at which temperature the air is capable of holding 8.01 grains per cubic foot, *ceteris paribus*, this air would have a relative humidity of 36 per cent, whereas the desideratum is about twice that amount, viz, 70 per cent. Expired air is saturated for its temperature, say 98 F., and is carrying about 18.9 grains of water vapor per cubic foot. The saturation deficit must be supplied by the respiratory mucous tract and much dryness and irritation of the sinuses and respiratory tract result.

"Air from a louver in the wardroom country has been observed by me to be delivered at 120 F. dry-bulb (i. e., the thermometer scale would register no higher, but the mercury went the limit), while the wet-bulb thermometer mounted on the same board registered 70 F. Some method of humidification of the air so heated should be devised in order to reduce the headaches, and nasal and bronchial irritation caused by the too dry air."

The medical officers of the U. S. S. *New York* and *Texas* also noted the necessity of adding moisture to the air:

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"The heating of the ship (*New York*) is effected through the supply ventilating system, and is efficient. The amount of steam to the radiators in this system is controlled in the engine room, rather than at the numerous radiators throughout the ship. The dryness of the air, which is common to the indirect system of heating, is corrected by having a small jet of steam escape from the radiator to be taken up by the passing air. With this combined heating and ventilating system, the advisability of having a cut-off in the louver of a pipe discharging into a passageway or into a large compartment, is questioned. Too often a cut-off is found closed because the rush of air, or dust coming through the pipe, or an uncomfortable temperature has been annoying to someone. On an inspection below deck, a number of louvers are always found closed, and the efficiency of the ventilating system correspondingly diminished."

"In most of the living spaces on this ship (*Texas*) as the heat and fresh air come through the same system it is impossible to supply fresh air without heat if the heating system is on. Therein lies the great drawback to the dual system. If the dual system is to be retained on our ships I would recommend increasing the number of heating bunkers, as with the present system there is much too large a territory supplied from a single bunker which results in a section of the territory supplied getting too much heat and another an insufficient amount. Steam radiators have been installed in the forward lavatories belonging to the wardroom, junior, and warrant officers, with satisfactory results. During the past two months the general heating system on this ship has been placed under the immediate charge of the medical officer, and we have found that the dual system will heat the ship even in very cold weather, provided the instructions are properly carried out. Our present scheme is to turn the heat on the spaces occupied by the crew at 4 a. m., and to turn it off at 9 p. m. We turn heat on the officers' quarters at 5 a. m., and off at 11 p. m. The results have been fairly satisfactory. I am of the opinion that if the heat be cut off entirely during the sleeping hours it will, to a very great extent, eliminate the complaint in regard to the excessive dryness of this system. It appears to me that the cutting out of all heat during several hours each night is a distinct sanitary gain."

HOSPITAL SHIP.—Congress has authorized in the appropriation bill the first hospital ship to be built as such from the keel up by this or any nation. Plans for this ship, based on long experience with converted hospital ships and the experience of the European war, have been prepared by the Bureau of Construction and Repair in collaboration with the Bureau of Medicine and Surgery. The ship will be an oil burner, designed for a capacity of something over 300 patients in peace time, with a war capacity of over 500. The design incorporates the most advanced features of ship construction, including stabilizers, vacuum cleaning installation, etc. The hospital department will, in addition to its medical, surgical, and contagious-disease divisions, include an up-to-date out-patient department for special examination and treatment of men in the fleet requiring special and temporary services. She will also carry in her hold regimental and field hospital medical equipment, including ambulances and other sanitary paraphernalia. When finally completed it is believed she will represent a model ship of this class for many years to come, and her usefulness

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may well be expected to continue during the lifetime of those who had a hand in her designing. It would be impracticable to describe the many advanced features of this ship in this report, but the methods of handling patients, their baggage, food, laundry and linen repair, the care of the dead, X-ray, chemical and biological laboratories, interior transportation, vacuum cleaning, water cooling and distribution, and other measures for the care, comfort, and welfare of the sick have required much thought, study, and perseverance. In preparing the plans the bureau is indebted to many of the medical officers of the service who have contributed their opinions and ideas to the end that an efficient and useful adjunct to the fleet might be created.

A representative of the Bureau of Medicine and Surgery has been in touch with the plans from the beginning, and it is hoped will be able to follow the ship through her construction to ultimate completion.

SANITARY CONDITIONS AND MEASURES ASHORE.

NAVAL ACADEMY, ANNAPOLIS, MD.—The total number of admissions for all causes was 1,730, and 120 readmissions, with a total of 3,589 sick days. This gives a daily average of 9.83 patients as compared with 6.12 in 1914. The average complement for the year was 1,428, an increase of 108 over 1914. Of the admissions and readmissions, 1,566 were for diseases with 3,097 sick days, and 284 for injuries with 492 sick days. Of the diseases, the greatest damage was due to influenza, which caused a total of 616 admissions and readmissions to the sick list with 1,509 days. Gastro-intestinal diseases caused a total of 158 admissions and readmissions, counting midshipmen only, with a loss of 221 days as compared with 196 admissions and 326 sick days in 1914. There were 94 admissions and readmissions due to football, with a loss of 147 days as compared with 42 admissions and 100 days in 1914. The daily average of patients for diseases was 8.48 and for injuries 1.34. The percentage of sick was 0.74 as compared with 0.46 in 1914. There were 490 cases transferred to hospital, of which 113 were for injuries. Seventeen men were invalided from the service, three died, all due to accidents, two away from the station, and one from drowning at the academy. There were 25,796 visits of midshipmen to sick quarters, causing a damage of 2,728 sick days and 2,852 days on the excused list. As compared with 1914, there were 2,413 more visits to sick quarters, 942 more days on the sick list, and 284 days less on the excused list. The average number of visits per day in 1915 was 70.6, as compared with 64.06 in 1914. There were 494 vaccinations against smallpox, and 795 persons received typhoid prophylactic. In the laboratory 1,236 urine, 54 blood, 1 feces, 20 milk, 20 sputum, 60 cultures, and 11 smears were examined.

The Naval Academy dairy was moved to the farm at Gambrill's Station in May. This farm contains 780 acres, and the soil is well adapted to cultivation, having been tested by the Department of Agriculture. The cow stables were built and all equipment for the dairy installed under the supervision of the Bureau of Animal Industry. At present 100 Holstein cows furnish about 300 gallons of milk; this milk is cooled down by a refrigerating process to 40° immediately after being drawn, and is shipped by rail to Annapolis. It is kept at a low temperature in the milk and butter room at Bancroft Hall until used. As previously mentioned, the dairy is under the supervision of the

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Bureau of Animal Industry, the representatives of which frequently test the cows for tuberculosis, and inspect and score the dairy as to methods and equipment. By this means milk is kept up to the highest standard. This milk of Holstein cows is not rich in butter fat, having about 2.5 per cent, which is rich enough for adults. In some cases it has been found that infants did not thrive on this milk, but as a rule the low degree of butter fat is more than compensated by the purity; especially is this the case in the summer time when bacteria are more prolific.

The best results from the use of milk are seen during the summer in the effect on the new fourth class men. The upper class men being absent, these have all the milk they can drink, so very appreciably gain in weight. The average gain of the present fourth class was 7 pounds per man from the entrance in June and July to the 1st of October, or a total of 1,890 pounds in less than four months.

The following tables and remarks submitted by Surg. R. G. Heiner are given here as of quite general interest:

Average defects for all midshipmen this year and last year.

Number of physical defects.	Percentage of total.	
	1916	1915
No physical defects	54.26	40.15
1 to 5 defects	40.00	45.29
6 to 10 defects	5.55	7.27
11 to 15 defects	.90	4.29
16 to 20 defects	.40	.85
Over 20 defects	.13	2.15

Defects, by classes, and comparison with last year.

	First class.		Second class.		Third class.		Fourth class.	
	1916	1915	1916	1915	1916	1915	1916	1915
	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.
No physical defects	37.13	14.97	65.40	25.01	64.35	28.07	49.05	40.88
1 to 5 defects	54.62	77.58	30.81	69.79	32.68	66.57	45.28	55.06
6 to 10 defects	14.85	4.59	2.70	3.64	2.47	4.07	3.77	2.46
11 to 15 defects	2.28	2.29	.53	.52	.50	.00	.47	.80
16 to 20 defects	.00	.57	.53	.52	.00	.45	.94	.40
Over 20 defects	.00	.00	.00	.52	.00	.00	.47	.40

Average strength, by classes, compared with last year.

	First class.	Second class.	Third class.	Fourth class.
1915	5,391	5,555	5,166	5,014
1916	5,461	5,483	5,470	5,167

Average weight, by classes, compared with last year.

	First class.	Second class.	Third class.	Fourth class.
1915	149.9	146.4	147.4	146.1
1916	151.6	151.1	151.5	150.8

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Spirometer deficiencies.

	First class.	Second class.	Third class.	Fourth class.
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*
1915	6.77	4.07	3.64	4.7
1916	16.00	5.3	3.4	3.87

Average gain in strength per man since last year.

First class.	Second class.	Third class.	Fourth class.
Points.	*Points lost.*	*Points.*	*Points.*
70	72	304	153

Average gain per man in weight since last year.

First class.	Second class.	Third class.	Fourth class.
Pounds.	*Pounds.*	*Pounds.*	*Pounds.*
1.7	4.7	4.1	4.7

"There is no way to account for the greater number of spirometer deficiencies for the first and second classes. They have had, if anything, more outdoor exercise, and the Swedish drills are carried out as usual with a view to development of lung capacity, free movements of the chest, and correct posture.

"A careful examination of each midshipman has been made, and I am taking the liberty to report on certain defects which have not been made a subject of previous reports and to recommend certain exercises which I think will do a great deal toward correcting them.

"I find that the following percentage of midshipmen in the various classes have curvature of the spine to a more or less marked degree:

First class.	Second class.	Third class.	Fourth class.
4.0	6.4	14.0	13.2

"That the following percentage have a tendency to or slight flat feet:

First class.	Second class.	Third class.	Fourth class.
14.5	15.1	22.2	30.0

"That the following percentage have flat feet to a marked degree:

First class.	Second class.	Third class.	Fourth class.
5.1	6.4	7.4	10.3

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"In addition to these more frequently present defects, there are a few cases of marked underdevelopment—4.2 per cent of fourth class, 2 per cent of third class, 5 per cent of second class, 5 per cent of first class.

"The Swedish drills do much toward correcting deformities and developing the muscles, but these few with marked deficiencies need special and constant attention. They should take part in as many forms of physical culture and athletics as possible, besides having special exercises to suit their needs."

NAVAL DISPENSARY, WASHINGTON, D. C.—Medical attendance furnished to officers and enlisted men on the active and retired lists and their families included 3,340 house calls, 2,232 dispensary consultations and treatments, 179 electrical treatments, and 156 bakings in the hot-air apparatus for chronic joint troubles.

Office calls by months were as follows:

July	513	February	585
August	118	March	629
September	328	April	567
October	567	May	564
November	556	June	446
December	689		
January	937		6,499

The total number of cases treated by the specialist on eye, car, nose, and throat diseases was 3,241. Dental treatments numbered 1,002. There were 11,622 prescriptions compounded.

Much assistance to the regular staff was furnished by the specialists on mental and nervous conditions, skin diseases, roentgenography, surgery, etc., on duty at the bureau and the Naval Hospital.

NAVAL HOSPITALS.

ANNAPOLIS, MD.—The amount of work accomplished this year in the matter of patients admitted, operations performed, and number of sick days has been greater than in any previous year, although the medical staff, owing to the shortage of the corps, has been below the needed number. Undoubtedly the coming year, with the large increase in the number of midshipmen under instruction, will be a very much more busy one.

There were 603 admissions during the year, 14,428 sick days, and 36 major operations and 143 minor operations performed. During the football season there were 36 admissions for football injuries, made up of 24 sprains, 4 fractures, 2 dislocations, 3 contusions, and 3 cases of synovitis, totaling 433 sick days.

The grounds of the hospital have been greatly improved during the year. The roads and walks have been improved or relaid and retaining walls built. The marsh at the foot of the hospital hill has been filled by contract during the present calendar year, and this long-standing nuisance has finally been abated and the improvement will ultimately add greatly to the beauty of the entire reservation.

CANACAO, P. I.—The sanitary condition of the hospital reservation during 1915 was excellent, no cases of disease attributable to insanitary conditions originating here. The health of the working personnel was excellent, only 10 cases of dengue occurring.

There were 51 cases of injury and 546 cases of diseases, 49 remaining from the year 1914, 72 admissions, 476 readmissions, 379 discharged to duty, 7 deaths, 66 transferred, and 75 continued to the year 1916.

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Of diseases, 46 cases remained from the previous year, 67 cases were discharged, 433 readmitted, 350 discharged to duty, 64 were changed diagnoses, 3 died, 64 were transferred, and 65 were continued to the calendar year 1916.

Of injuries, 3 cases remained from the previous year, 5 cases were admitted, 43 were readmitted, 29 were discharged to duty, 6 diagnoses were changed, 4 cases died, 2 were transferred, and 10 were continued to 1916.

The total number of sick days due to diseases was 12,142, and to injuries, 897.

During the year there were 245 cases of venereal disease with 5,779 sick days, including 150 cases of syphilis with 3,342 sick days from that disease. There were 699 Wassermann tests made and 97 salvarsan treatments.

CHELSEA, MASS.—The new hospital was commissioned April 24, 1915. This modern type of hospital, together with its complete and up-to-date equipment and furnishings, provides an establishment for the care of the sick wherein little more could be desired. Incidental to the occupancy of the new building, considerable structural defects of minor consequence developed that have necessitated supervision and correction.

A generally good sanitary condition was maintained about the reservation during the year. The plumbing, sewage, and drainpipes in the western end of the old hospital and outlying buildings, which are of old design and time-worn, have been repaired from time to time as necessity required. The western half of the old hospital has in part been made use of for the care of any contagious or infectious cases that occurred. Hospital corpsmen, civilian employees, and the marine guard are also housed here. Provisions could also be made in this section to care for about 75 patients. In view of the fact that it is necessary to maintain this part of the building for the purposes above mentioned, the lavatories, baths, and plumbing, which are worn out, will have to be renewed during the present year, even though no repairs and alterations are made to put it in an efficient condition for the care of an overflow of patients. Should the latter be undertaken, suitable cooking arrangements would also have to be provided, as the equipment of the old kitchen is antiquated and worn out. The eastern half of the old hospital was converted into quarters for nurses. Here, repairs and alterations were made throughout, baths, lavatories, and plumbing renewed, and furnishings and equipment provided for 15 nurses and 3 servants. A change from steam to hot water heating was effected throughout the entire building.

In the reconstruction of this end of the building all communications with its western half were cut off by bricking up the various entrances. A doorway was built to the south and the old one to the north maintained. The various floors are reached by a stairway in the rear or north end of the building, which, as a means of exit from the third and fourth stories in the event of fire is considered inadequate. Fire escapes could be put on the building at but little cost. It is believed that the establishment of this well-appointed home for nurses on the reservation will result in a marked degree of contentment among them and a consequent maximum efficiency obtained for the institution.

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GREAT LAKES, ILL.—The reopening of this hospital has been fully justified. The number of patients treated has increased to such an extent that at present over 100 patients are being taken care of, whereas the hospital is normally an 80-bed institution. With the increased number of patients, much trouble has been experienced in finding places to berth them. Even with the size of the Navy during the past year this has been found necessary, and with the increase authorized by the present Congress the pressure will be extreme. The hospital is in every way a great credit to the service, and in its equipment and service is unsurpassed. Unfortunately no appropriate provision is at hand for contagious diseases, which are extremely prevalent in this region, particularly so on this station, which as a training station necessarily handles youths of a susceptible age. Influenza, mumps, scarlet fever, etc., have caused much loss to the service, and much interference with efficient work and routine. At least three contagious units should be provided. Much minor repair work is needed in the way of relaying tiles, walks, etc. Fifteen hundred feet of the former need replacing, and all of the old walks, being of wood, are becoming a menace and need replacement with permanent concrete.

The cemetery has been placed under the charge of the commanding officer of the hospital during the past year. The location of this is, however, unfortunate, and removal to the attractive and appropriate grove at the extreme western end of the hospital reservation is desirable. The very limited number of graves in the present situation would render this an easy and inexpensive task, as well as providing a most suitable and dignified resting place for our future naval dead.

LAS ANIMAS, COLO.—The excellent professional side of the work done at this hospital has been discussed on page 10.

The work of graveling the roads has been continued as opportunity offered during the year. The majority of the pines and elm trees which had been set out during the preceding two years are alive and made a good growth, and 90 per cent of the pines and ash trees transplanted this year are alive and doing well. About 500 rose bushes were presented to the hospital and were set out in February and all are in thrifty condition at present. The vegetable garden furnished an abundance of such vegetables as were spared by the unusually late frosts in the spring; in a few instances it was too late in the season to reset the plants killed in this manner.

Cost of daily ration for fiscal year:	
1912	$0.781
1913	.739
1914	.721
1915	.672
Cost of daily ration for fourth quarter, 1915	.637
Cost of daily ration for first quarter, 1916	.576
Cost of daily ration for second quarter, 1916	.524

It is to be noted that with this marked reduction in the cost of the ration there has resulted an improvement both in its quality and variety. It seems reasonable to expect a further reduction of about 2 cents in the average cost of the ration during the remainder of this fiscal year. The service from the bakery has been entirely satisfactory.

Development work on the farm has continued. Not more than 50 acres of the original prairie land which is available for agricul-

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tural purposes remains to be broken up. About 2,400 bushels of grain were harvested, which will be an ample supply for all farm animals for the year; also an abundant supply of first-grade alfalfa hay. About 500 tons of barnyard manure were obtained from a neighboring ranch and ploughed into the various fields in addition to green manure for about 50 acres of sweet clover, alfalfa, and oats. In addition to the routine work about the farms and building area, the farm teams have hauled more than 900 tons of hospital stores from Las Animas and Rixey. A costly outbreak of hog cholera occurred during the late fall and caused the loss of nearly 100 of the herd of hogs in various stages of development—50 per cent of the entire herd. Fortunately all but three of the brood sows were saved and should only suffer a loss of about six months in the normal development of the herd.

During the past year the hospital has expended $12,506.86 for milk and cream. The present Congress has provided $25,000 for the establishment of a much needed dairy. The hospital has been paying $0.26 per gallon for milk, which it can now easily produce for $0.10. This is a most desirable and satisfactory addition to the institution.

NEWPORT, R. I.—Improvement of the grounds has progressed most satisfactorily. A fence inclosing the grounds on all sides excepting the water front has been built. This construction is post-and-rail, concrete posts carrying two rails of 2-inch galvanized iron pipe. Inside the fence a privet hedge has been planted. This, as the hedge makes growth, will serve very well to protect the grounds from outside trespass. The public are permitted to pass through the grounds by a pathway along the sea wall; there has been little disposition to gain unauthorized admission. Outside lighting of the grounds, by a series of 18 high-power lamps on ornamental iron pillars bordering the front and rear roadways and the wharf, has been installed.

The embankment facing the harbor has been graded along the new section of sea wall and a footing of turf laid; the upper surfaces will be seeded in the spring, thus completing the improvement of the waterside. A graded and graveled pathway has been made along the sea wall at the foot of the embankment, which is open to the public.

The large area which had been plowed in the autumn was cleared of stone, the old roads and paths surfaced with soil and seeded in the spring, and is now in good turf throughout. The section in the rear of the main building, facing Third Street, which had been the dump for broken rock and soil from the foundation excavation, has likewise been cleared, leveled, topsoiled, and seeded with like results. The low area in the northeast corner of the grounds, adjacent to the power house, has been about half filled with cinders from the power plant and surfaced with topsoil.

The completion of this section will practically finish the improvement of the grounds. In the way of arboreal embellishment, a screen of evergreen trees, 30 in number, 10 feet high, has been planted, bordering the roadway to the rear entrance on Third Street. At the front entrance two groups of dwarf conifer evergreens, 36 trees, have been planted; the oval in the driveway facing the front steps has been beautified by a central bed of hardy rose bushes and on the margin a plantation of pyramidal box trees.

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NEW YORK, N. Y.—Three new contagious units of standard design have been erected in the northwest corner of the hospital reservation. These are one-story brick buildings, each having one ward, susceptible of division into three compartments, diet kitchen, ward toilet, quiet room, medical officer's room, nurses' room, toilet for nurses, and two halls.

OLONGAPO, P. I.—The *Relief* is still, as condemned in my report of last year, the only hospital on this station, and as such has met the needs arising. The condition of the ship in general is poor, and unless a considerable sum is expended another year will practically necessitate rebuilding of the entire hospital part of the ship. The sanitary condition is poor due to the rotting woodwork, the medical ward needing a wooden deck to replace the canvas covering, and the boat deck and screened infectious ward are leaking badly in spite of recanvassing and pitching, making the quarters of the medical officers and Hospital Corps at times uninhabitable.

PHILADELPHIA, PA.—The undesirable location of the present hospital reservation, the insanitary commercial neighborhood, and the great distance from the source of the majority of its patients—the navy yard—make it more and more evident that a new hospital should be constructed nearer the navy yard. With the increase in the naval personnel this will become decidedly more evident and unless carried out additional construction will be needed on the present site.

Quarters for female nurses are also needed, as the Government is at present using the expensive plan of renting quarters in the city of Philadelphia, not only an extravagant but an inconvenient substitute.

PORTSMOUTH, N. H.—This new hospital is doing excellent work, expanding in scope each year. The total number of patients from the active list of the Navy during the calendar year 1915 was 816, with 22,939 sick days, or a daily average of 62.8 patients. In addition to these there were under treatment 27 supernumeraries, with 551 sick days, making a total of 853 patients, with 23,490 sick days, or 64 patients per day. Compared with preceding years there were, in 1914, 17,392 sick days and an average of 47 patients per day; in 1913, 7,059 sick days and an average of 19 patients per day.

The commanding officer, in commenting on the excellence of existing conditions, points out, however, the needs of quarters on the hospital reservation for the medical and Hospital Corps staffs, the need of an infectious disease pavilion, and the need of a suitable stable and garage, as well as additional storage facilities.

PUGET SOUND, WASH.—The general condition of the hospital grounds remains about the same, although there has been considerable work and attention given to keeping the grounds in an attractive condition. Early in the year the new infectious wards were completed, and have proved a great success, although only a few cases of smallpox, chickenpox, mumps, and measles have been admitted. One house is used as a venereal ward and is found to be a great improvement compared with the damp vacant basement of the main building that was formerly used for such cases.

The following cases of contagious diseases were admitted, i. e., 2 cases of smallpox, both recruits from the receiving ship, and who had previously been sent from the Salt Lake City recruiting office to this

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station, where there are no means of segregation of men recently entering the service. Both cases, although of a confluent type, recovered and were discharged to duty in good condition. Two cases of cerebrospinal fever developed on ships in the reserve fleet. One died and one thoroughly recovered and was restored to duty. There were 7 cases of chickenpox of a mild type, 4 cases of mumps, and 5 cases of measles.

The new automobile ambulance which was purchased in May has been a source of comfort to the patients in transportation, and the necessary work has been greatly facilitated by its use. A suitable temporary garage was built at small cost and has been satisfactory. A very much needed stable has been built within the grounds and was occupied late in December. It will undoubtedly be a source of convenience as well as more economical for future use.

WASHINGTON, D. C.—The annual report of the commanding officer of this hospital is most complete in its discussion of all points of value to the service, including buildings, material equipment, Hospital Corps, patients, etc.

During most of the year only two or three wards of the hospital have been utilized. The receipt of a large number of patients from the *Solace* early in the year caused all beds to be filled, and there was an overflow of patients to the top floor of the hospital corps building where there are two wards suitable for such purposes. In that locality patients capable of walking were quartered, such as were able to go to the mess room for meals. Of course such a situation requires additional members of the Hospital Corps.

During the year the hospital continued to receive from various stations patients having mental disorders in varying degrees. Quite a number of them were ultimately transferred to St. Elizabeth's Hospital, and some were found to be of such character as to permit discharge from service.

In connection with the subject of mental disorders the hospital has been impressed with the number of cases of paralytic dementia and consequently the effect that syphilis continues to have on the naval service. Another situation is that some of these cases when subjected to intensive treatment have been found to improve to the extent of appearing quite normal to their friends and relatives. During that time it appears quite possible that in some cases there may be request or desire for return to duty. However, the point can not be too strongly emphasized that no person with such history should ever again be placed in a position of responsibility.

The facilities afforded at this hospital during the year for the treatment of disease and injury have been excellent. Results obtained from operations have been excellent as a rule. In connection with operations the underground tunnel connecting the main building with the sick officers' quarters has continued to afford a convenient and proper route for the transfer of officers to and from the operating room.

The hospital received during the year the usual number of retired officers as patients. At times all rooms available in the sick officers' quarters have been occupied. There are indications that the facilities afforded here for the care of such officers are being more extensively realized. Not a few officers on the active list were received during

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the year for observation and for consideration thought necessary in view of health records showing continued absence from duty. A few of these cases have come within the domain of psychiatry.

NAVAL STATIONS.

GUAM, M. I.—The work of the Medical Department in Guam continues to impose a heavy burden of responsibility upon the medical officers attached to the station. The care of a 13,000 native population as well as the naval personnel, the executive details of the hospital, the sanitation of the entire island, quarantine precautions, etc., indicate the scope of activities demanded. There are no practitioners on the island other than our naval surgeons and no hospital other than that at Agana. The native realization of the benefits of such assistance decreases with the distance from the capital, and owing to ignorance, prejudice, or distance from Agana, only a small percentage of all cases are actually brought to the hospital, and but too frequently only when the patient is in a moribund condition and past possible recovery.

The work of the hospital keeps at a high state of efficiency and reflects great credit upon the medical officer in command.

GUANTANAMO, CUBA.—A suitable barrack building for the enlisted personnel is urgently needed. During the past year the men have been quartered in the construction building and from there they were moved to the surveying barge and are now quartered in tents. During the greater portion of the year the climate is quite warm, and from a sanitary point of view men can be kept in better health and spirits if they are properly quartered. A barrack building presents many advantages over a station ship. The air space on a small ship is limited, and the ventilation is comparatively poor. If the barracks were constructed on the water front, to the eastward of the machine shop, a constant breeze would blow through the building, and the air passing over the water would be cooled. At this place there would be very few mosquitoes and sand flies.

The roofs of all the living quarters at the new station have been ceiled. The quarters have thereby been wonderfully improved and the occupants are far more comfortable.

The water question at this station is still an open one. It is believed that the best water in this region can be obtained from the Yateras River.

During the past year there were 318 cases admitted with a total of 3,767 sick days. The general health of the personnel of the station has been good. There have been a few cases of dengue, and two cases of tuberculosis developed on the reservation. There have been no cases of malaria.

KEY WEST, FLA.—The climate is essentially tropical. The presence of frost has never occurred, and the lowest temperature recorded was 41 degrees, which was more than 34 years ago. January is the coldest month and averages from 68 to 72 degrees. July and August are the warmest months of the year, with an average temperature of from 80 to 85 degrees. The prevailing summer winds, blowing from the east almost continuously over the island, render the long summer exceptionally agreeable. Occasional exceptions to the general average in temperatures occur, which last only a few days. The bed rock

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on which the station is located is composed of coral, with a top soil of coral marl. The flora is confined to that of the usual tropical variety, and its cultivation is carried on with success at the station.

The physical condition of the personnel is excellent. The average complement is 131. Number of cases transferred to the marine hospital, 31; number of sick days, 1,157. The percentage of sick days for the year, 2.4. The number of cases admitted to the yard dispensary ward, 53.

The sanitary condition of the station has been very good during the past year. There were no epidemics on the station. No cases of malaria have appeared which could be traced to conditions existing on the station or in the immediate vicinity. No cases of plague, yellow fever, or typhoid fever have appeared; but one case of typhoid fever has been observed, and this in the case of an officer in the Coast Artillery Corps, who came into this port with the disease, contracted at Tampa. This patient had received his typhoid prophylactic five years previously. Almost no venereal disease has appeared. The use of cowpox and antityphoid prophylactic is regularly carried out.

The health of the population of Key West has been very good during the past year, which result has its good influence on the health of the naval station. No cases of dengue fever have appeared during the year, where hitherto it has been prevalent. Tuberculosis and the gastro-intestinal diseases of infancy are the principal causes of death in the city.

NEW ORLEANS, LA.—Following a period of about three years, during which it was closed, the station was reopened in January, 1915. The station comprises about 210 acres of low, level land, roughly about one-half by three-fourths mile in extent, lying along the western (south) bank of the Mississippi, with a gradual slope away from the levee. Only a comparatively few of the yard blocks have been filled in to the established drainage level, viz, those upon which yard buildings are located. The remainder are from a few inches to 2 or more feet below this level. Three main covered canal drains traverse the station from near the levee to the opposite side of the yard, where they empty into the city drains. Surface water from all these unfilled areas does not drain into the above-mentioned canals, but through innumerable small ditches, which are habitually choked with vegetation and too low to flow into the city drains. The surface drainage of the whole station is therefore poor, and mosquitoes have been prevalent throughout the year.

All public buildings of the station are in apparent good repair and in good sanitary condition. During the year all buildings occupied as living quarters have been completely screened against insects, including porches thereof, and steps taken to render them rat proof.

The general health of the station during the year has been good. There has been no epidemic of disease. The percentage of sick for the year was 2.2. This does not include those cases transferred to the yard dispensary from ships, etc., for treatment.

PEARL HARBOR, T. H.—The total area of the Pearl Harbor reservation is 779.5 acres; subtracted from this is the hospital reservation of 40 acres. Roughly speaking, the reservation is bounded on the north and west by the harbor, and on the south and east by cane fields. Included in the reservation on the northeast is an island reserved for ordnance purposes, now used, however, as a base for the submarine flotilla

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The station is still in process of development. During the year five industrial buildings were erected and one refrigerating plant, one power and locomotive house, and one marine guardhouse on Magazine Island.

The following improvements in living conditions have been instituted during the year: Electric illumination of quarters which formerly ceased at midnight is now continuous; general illumination of reservation now obtains and telephone connection through the local exchange is now possible to all parts of the island of Oahu. Lawns are being developed around all the quarters and at the marine barracks and administration building; the planting of trees has been accomplished in a number of places.

Considering the disturbance of the soil, etc., in connection with the erection of buildings, construction of roads, etc., which has been prosecuted during the year, the general sanitary condition of the station has been very good.

Mosquitoes are present the entire year in great numbers, and on account of adjacent cane fields where breeding is facilitated in consequence of artificial irrigation, there does not seem to be much hope that their numbers will be diminished. The quarters are efficiently screened and fortunately the Anopheles mosquito does not exist in the Hawaiian Islands. A low, swampy area 10 acres in extent, in front of the officers' quarters, a possible breeding place for mosquitoes, is now being filled. There are no other low or swampy places on the reservation which, in normal condition of fairly dry weather, might afford breeding places. Flies are few and not troublesome.

The water supply is from an artesian well some miles distant and pumped to reservation. It is of good quality. Plumbing and natural drainage are good.

There has been no unusual endemic or epidemic disease on the station during the year.

TUTUILA, SAMOA.—All public buildings with but two exceptions are in good condition. The station mess building has been thoroughly overhauled and is in fair condition. It is, however, still an old structure, infested with rats, and never can be made entirely sanitary. It should be replaced by a substantial concrete building of more permanent construction. Concrete is recommended not only on account of its durability, but also because it can be made more easily rat proof. The station bakeshop also can not be kept in good condition. It is old and unsightly, and should be replaced by a neat concrete structure. The bake oven has been rebuilt and now answers its purpose well.

The drainage and sewerage systems of the station have proven fairly efficient. As heretofore recommended, a system of open concrete drains would be an improvement; this would prevent stagnation and accumulation of débris, etc., which afford breeding places for mosquitoes.

The quality of the water is good, but its quantity, except during heavy rainfall, is entirely inadequate. A few days of dry weather, say 10 days for example, always means a shortage of water. There has been considerable drought during the year and the water shortage at times has been most serious. The normal annual rainfall in order to preclude absolute shortage should be 250 inches; this year, however, there was a total precipitation of only 156 inches. The

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drought was of some five months' duration, the lowest monthly rainfall being that of August, in which only 0.6 inch fell.

Health of the personnel: Total sick days during the year were 690, as against 945 in 1914 and 1,289 in 1913. Diseases giving this number of sick days were as follows:

Conjunctivitis	44
Abscess unqualified	61
Filariasis	62
Appendicitis	65
Gonococcus infection of urethra	17

Particular care has been taken with all cases of gonorrhea to prevent spread of the disease in American Samoa. All cases were carefully restricted and sources of contagion found among the natives were promptly sent to the Samoan Hospital and restricted there until cured.

Typhoid prophylaxis was given where needed. No cases of typhoid have occurred this year. There have been no epidemics.

In the Naval Medical Bulletin, July, 1916, is a valuable account of further points of interest and activity in the hygiene and sanitation of the islands.

NAVAL TRAINING STATIONS.

GREAT LAKES, ILL.—The health of the personnel of the station for the year 1915 was very good, and the general sanitary condition excellent. The admissions for carrier, diphtheria bacillus, were those of recruits, all being discovered by cultures from throat upon reexamination on reporting on the station. Of the eight cases of tuberculosis, chronic pulmonary, six were readmissions for the disease in officers ordered to appear before a naval retiring board. Mumps and measles are the most prevalent of the communicable diseases on the station. The number of cases of the latter disease have been controlled by daily inspection of the men, especially of the throat, and the immediate isolation of suspected cases and their effects. It has not been found difficult to eliminate cases of measles. The eradication of mumps cases on the station has never been successful. Daily inspection of the brigade is made during the prevalence of the disease, and suspicious cases are isolated for observation. All the drinking fountains are of the sanitary type and are carefully cleaned; and the mess gear is thoroughly sterilized before being returned to the racks. Occasionally a week or two passes without a case of mumps, then another case of the disease appears. The effects of each patient and suspect are removed from the barracks and sterilization done in each case of the disease.

The typhoid prophylactic was given to 2,186 men during the year. No untoward effects were observed, but in a few cases malaise, slight fever and soreness at the point of inoculation were observed.

In 1914 flies and mosquitoes were prevalent on the station, the former so numerous as to become practically a pest. During 1915 the station was comparatively free from both flies and mosquitoes. This gratifying result is believed to be due in a great measure to the efficient method of weekly inspection of the whole station by the commissioned personnel. The inspection party is divided into three groups, each accompanied by a yeoman. Every building is therefore thoroughly inspected and note made of any defect requiring atten-

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tion. The medical officer accompanies the commandant, and sanitary matters are discussed during the inspection. This division of the station into three parts for inspection purposes, and the thorough weekly inspection by the three groups of officers who inspect a different part of the station each week, is believed to be the only satisfactory method of inspection of such a large station as this is, and undoubtedly obtains the best results.

Since my last report there has been added to the filtration plant at this station a liquid chlorin sterilizing equipment. This equipment was installed with the chlorin meter in the pump room of the power house, with hard rubber piping for carrying the effluent of water and the chlorin to the clear-water reservoir in the filter plant, where it mixes with the clear water as it enters the reservoir from the filters. This method allows chlorin to be properly regulated and again gives the entire reservoir (225,000 gallons capacity) opportunity for absorbing any excess charge of chlorin which may accidentally be introduced. Since installation, September 2, 1915, chlorin has been fed continuously except one day when the meter clogged. Analysis of water taken from water faucets made at the naval hospital, approximately 10 times a month, show that since September 2, 1915, the maximum bacteria have been about 10 per milliliter, and *B. coli* has been absent in all tests.

NORFOLK, VA.—The average complement for 1915 was 1,569, a reduction of 367 from the previous and even less by 75 than that of 1913. The reduced complement necessarily lessened somewhat the work done during the past year. However, some of the work accomplished by the medical department is represented by such items as 3,220 admissions and readmissions, 13,978 sick days, 2,467 vaccinations and verifications, 2,701 typhoid prophylaxis inoculations completed, 992 physical examinations for enlistment, 2,336 physical reexaminations of recruits, 5,363 examinations for transfer, 903 examinations for discharge from the service, and 106 medical surveys.

One hundred and four recruits arriving here with disqualifying physical defects were surveyed and returned to their homes. There were 33 causes for survey, and the principal causes were trachoma, 20; neurosis of bladder, 15; flat feet, 11; goiter, 7; and neurasthenia, 6.

The most important change made during the past year has been the placing out of commission and removal of the old receiving ship *Franklin*. This change was made in accordance with the past policy of the department of relegating from the service this class of vessels and was precipitated by the appearance of extensive leaks in the hull due to deterioration. Consequently, other quarters had to be found for the sick bay, medical storerooms, and examining room, which were formerly on board the *Franklin*. The sick bay and medical storerooms were removed to the U. S. S. *Cumberland*, which now occupies the berth formerly occupied by the *Franklin*. The examining room was installed in two bungalows adjacent to building 86, and seems satisfactory as to location and accommodations. Eleven new bungalows have been added to the 4 at building 86. At building 81 (detention camp) the sick quarters have been increased by adding a well-lighted dental office and room for the physical reexaminations of recruits. This room is also used for vaccinations and to administer all typhoid prophylactic injections. Thirteen new bungalows have been added at main camp and 9 at de-

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tention camp, and many other desirable improvements have been made, particularly as regards heating and drainage.

The natural advantages of the vicinity of Hampton Roads as a location for a naval training station were referred to in last year's annual sanitary report, and a recommendation was made therein against the past policy of improving and repairing this station and in favor of the construction of an institution of modern, substantial structures in line with those buildings of the other training stations of the Navy. The present site is not suitable for the construction of such an institution, and it is also very probable that these grounds and water front will be needed in the near future to add to the facilities of the navy yard. For the past several years the desirability of building barracks in which to house the crews of ships undergoing repairs has been discussed with increasing frequency, and if such policy were to be adopted by the department these grounds could be advantageously appropriated for that purpose.

Without doubt the shores of the waters of Hampton Roads offer many excellent sites for the purpose of constructing a modern naval training station, and in particular the grounds of the Jamestown Exposition may be mentioned as almost ideal for such purposes.

NAVY YARDS.

BOSTON, MASS.—As noted in my report of last year, the medical officer of the yard has been most zealous in visualizing and actively carrying out activities beyond the usual scope of prescribed duties. New fields have been invaded and all departments combined so as to make a solid front to fight for health and to coordinate the efforts of all for the general good. There is no more fertile avenue for the entrance of disease into the service than through the foodstuffs supplied by contract to the personnel. How this food shall be prepared is generally definitely specified in the contract, and Government inspectors are supposed to see that the specifications are carried out, but nowhere is it specified that these foods must be prepared in sanitary surroundings, that the bread, milk, meats, etc., should be handled by clean hands, and prepared in clean shops, and this is practically as important as the purity of the ingredients of which the food is composed. This, as generally outlined, opened up a wide and interesting field for work and one which was bound to produce beneficial results. With the hearty, intelligent, and efficient cooperation of the supply officer of the navy yard, the medical officer was able to have placed on the face of all contracts for foodstuffs purchased through the purchasing pay office in Boston the following legend, as part of each and every contract:

"No award shall be made to any dealer unless the said dealer's establishment appears on the approved sanitary list of the Consumers' League of Massachusetts, subject to the approval of the medical officer of the navy yard, Boston, Mass., or unless the said dealer's place of manufacture, preparation, and packing, and all appurtenances and utilities pertaining thereto, shall have passed a sanitary inspection by the medical officer of the navy yard. Furthermore, any and all contracts shall be voidable without notice, at the discretion of the Bureau of Supplies and Accounts, if at any time the dealer's establishment is removed from the approved list of the Consumers' League of Massachusetts, or if, in the opinion of the

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medical officer of the navy yard, the dealer fails to maintain a satisfactory sanitary standard. If a dealer declines to afford proper facilities for inspection, or hinders such inspection in any way, his proposal shall not be considered or his contract shall become void, as the case may be."

As a result of this the medical officer can now be sure that these foods are prepared in a sanitary shop by sanitary methods, that they are clean and free from contamination when they leave the storehouse. About 50 inspections have already been made under this clause, and while some firms have lost their contracts on account of the condition of their shops or their insanitary methods of handling foods, the majority have seen the mutual benefits to be derived from the regulations prescribed by the medical officer and have made such changes as would conform to those regulations. All of these establishments are reinspected from time to time as opportunity presents and contractors kept up to their contracts. All foods are inspected by a Federal inspector under the Bureau of Animal Industry of the Department of Agriculture before they are delivered to the ships. Thus we have three inspections to safeguard the foods for the service; one for the ingredients of the foods, one for the sanitary surroundings in the preparation of the foods, and finally one as to the quality of the foods when delivered.

CHARLESTON, S. C.—The general sanitary condition of the yard and station has been excellent. The yard dispensary has been taxed to the limit and it has been constantly necessary to care for some of the sick of the station in tents.

There has been gradual improvement in the grounds, but the south end of the yard is still low and damp and partly covered by underbrush. The grounds about the industrial part of the yard and officers' quarters are in good shape and well kept. That portion of the hospital reservation lying south of Turnbull Avenue has been turned over to the Marine Corps by order of the department, and, like the hospital reservation itself, is in good condition. The water supply has been satisfactory in quantity and quality.

There was the usual epidemic of typhoid fever in Charleston during the summer and early fall months. There were no cases among the enlisted personnel or in the officers' families. There was also an epidemic of smallpox in the county, but no cases in the yard.

MARE ISLAND, CAL.—The sanitary condition of the station in general has been excellent and the health of its personnel very good throughout the year. The relative diminution of disease incidence noted last year as compared with several preceding years has continued. There occurred among an average of 1,013 officers and enlisted men the following cases of epidemiological interest: Influenza 7, tonsillitis 13, malaria 7, mumps 7, measles 2; but 1 case of pneumonia (bronchial). There were 2 deaths, 1 from accidental drowning and 1 suicide by carbolic acid.

The sanitary condition, activities, and facilities of the yard itself have been maintained fully as well as could be expected considering funds available and required for renovating streets, heating system, and public works generally. The civilian sanitary inspector gives his whole time to details for the greater part of the year, but during the rainy season devotes half days to other work. The nuisance

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of marsh mosquitoes has been largely removed by burning and petrolizing the tule marshes back of the civilian quarters at northwest side of the island. It was found that dikes and ditches would involve greater expenditure of funds than could be obtained, but, at any rate, the present source of these mosquitoes has been conclusively shown by the department of public works.

The rainfall for 1915 was satisfactory, 23.3 inches, and up to January 13, 1916, for this season 12.78 inches had already fallen, assuring adequate water supply for Wildhorse Valley, Vallejo's and the navy yard's supply for 1916. The city of Vallejo will have to take steps to increase its storage facilities soon, with largely increased population expected for extensive shipbuilding work being authorized for this yard, for with one or two years of low precipitation, as experienced in 1912 (11.6 inches), local activities could hardly again be maintained without materially increasing the water impounded.

The civilian force of yard employees averaged 2,334 men during 1915.

Total number of workmen given first-aid at yard dispensary	2,557
Total number sent home after treatment	208
Total number receiving redressings	386
Total number of deaths (killed in yard)	0

A week rarely passes that one or more injury or disability cases do not demonstrate clearly that it is to the decided advantage of the Government that applicants for civil employment be examined by some Government physician who is not pecuniarily or otherwise interested in the applicant to the prejudice of the interests of the Government. Heads of departments employing new men are now much more interested in thorough physical examinations and careful handling of injury cases than they seemed to be before injury claims were assessed against the particular yard from which they emanated.

The certification of injury claims has continued without material differences of opinion or any friction with civilian practitioners and the only cases that have been sent to the official referee appointed by the Department of Labor have been where the employee himself has either not reported for examination, declined to acknowledge himself fit to resume work, or preferred what appeared to the naval medical officer an unjust claim—either from absence of injury or disability, or with nonofficial origin.

The Naval Medical Supply Depot filled 361 requisitions during 1915, to the value of $50,829.40, the last quarter of the calendar year amounting to $21,047.32. Instead of gradually accumulating a reserve stock of nonperishable medical stores, dressings, instruments, etc., for issue in times of stress, when the majority of items would be most difficult to obtain, at least in western markets, the stock for current needs at this depot has been depleted about 20 per cent; the value of stock on hand January 1, 1915, was $61,762.63, and on January 1, 1916, but $49,995.82.

NEW YORK, N. Y.—From an average of 5,365 civilian employees, the yard dispensary furnished first-aid to 4,501 cases of injury, which is 1,275 more than for the previous year and 2,401 more than for 1913. This large number of injuries for the year makes an average of over 15 cases per working day, or nearly 1 every 30 minutes and when it is taken into consideration that the majority of these cases

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are treated at this dispensary throughout the entire period of their disability, each case reporting daily for treatment, the magnitude of the work done here can be easily realized. In addition to the above it has often been found necessary for a medical officer to visit a yard employee at his home to determine the progress of his disability.

There were many visits to the homes of officers and families entitled to medical treatment outside the yard. Many prescriptions, written by medical officers and civilian physicians, were filled at the dispensary for the families of officers and enlisted men. One hundred and sixty-six officers were examined preliminary to their annual physical exercise and many officers were examined at the expiration of sick leave to determine their physical fitness for duty. Visits were made to the homes of retired officers and enlisted men to determine the cause of death. Many candidates for midshipmen to the Naval Academy from the adjacent congressional districts were given the preliminary physical examination to ascertain the probability of their passing the required physical examination.

There was paid out during the year $35,892.98, or about $118 per working day, for disability compensation, under the act of May 30, 1908, which is $8,871.11 more than for the previous year; but when it is considered that there was an average of 435 more workmen employed and 1,275 more injuries during the year 1915 than during the year 1914, the proportionate increase is not great. Accounting for the large increase in the number of injuries, as noted above, it is believed that many more of the minor injuries are now reported than was formerly the case, due to instructions recommended by the medical officer. Three yard employees received compensation for one year each, their incapacity disabling them for that time.

There were 50 employees examined physically for promotion; 40 trainmen examined for color blindness, vision, and hearing; 1,649 unclassified laborers given civil service physical examination, and 4,501 civil service forms No. 1,800 were filled out, showing markings for physical ratings during the year.

One yard employee died from septic poisoning as a result of an injury received in the yard, this being the only death recorded.

The majority of the accidents were of minor severity, not requiring the period of 15 days necessary for compensation. A number of cases of malingering or exaggeration of condition were detected and referred to the physician of the Department of Labor, who in all cases agreed with the findings of the medical officer of the yard. A number of cases that were considered as fit to return to work by both the medical officer and the physician of the Department of Labor prior to the period which would entitle them to compensation did actually remain absent 15 days or longer upon their own responsibility, and on submitting claim for compensation were paid in full for the whole period absent.

PHILADELPHIA, PA.—Throughout the year the health and sanitary condition of the station, as far as these concerned the medical officer of the yard, were very good. All of the acute contagious and infectious diseases common to this latitude have been present to a greater or less extent in Philadelphia, but none has originated within the yard in the sense of spreading from a developed case which was infected outside, and no case of illness suggests in any way the existence of unwholesome, avoidable influence, either direct or indirect in effect, within the limits of the yard.

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The preparation, issue, and dissemination of information concerning matters of hygiene and sanitary importance to all on this station, including the Reserve Fleet and visiting ships, and concerning matters of broad professional interest to visiting medical officers has been continued throughout the year and has been greatly appreciated by the recipients. The facilities and assistance offered by the dispensary have been in almost daily demand, and if impartial comment of those supposed to benefit may be taken as a fair criterion the medical department is justified in believing that its activity has gone far to secure and maintain cooperative effort, to place timely, intelligible health signposts for those interested, and to effect progressive improvement in the general sanitary condition of the Government reservation.

There are 717 cases of accident among civil employees recorded at the yard dispensary for the year, of which 280 were given injury time, making a daily average of 20.5 men carried on the list and accounted for as absent because of disability incurred while on duty. The number that returned permanently to duty was 715, the remaining 2 necessary to balance those given time being accounted for by death. The difference between the total number reporting at the dispensary for injury (717) and the number of those given injury time (280) is 437, which number represents those whose injury was so slight or in such a locality that it was not necessary to grant release from work. It is worth noting that most of this group really desired to return to work and many cases to which the dispensary would have granted time actually insisted that they were able to return to work. These could be picked from among the good men and the new employees who had not been acquainted with the illegitimate possibilities of the liability law by immorally disposed associates. Of course, no case in which there would be the slightest danger from continuing work was allowed to do so. On the other hand, many men reported with trivial injury who refused to return to work—flagrant examples of a growing tendency among employees to exaggerate their conditions and take illegitimate advantage of a beneficent law and who, unfortunately for the example and precedent thus established, succeeded in their aim, despite all that was done or said to reassure them, to shame them, or to inspire a proper spirit and a loyalty to their work, their fellow employees, and the reputation of the navy yard in turning out jobs economically. The disposition exhibited in such behavior is pernicious and the 15-day provision of the law and the present system of determining disability favor it.

It is also interesting to note that of the total number of injuries reported at the dispensary, 302, or 42 per cent, were the result of carelessness on the part either of the individual, as in 229 cases, or of a fellow workman, as in 73 cases.

SANITARY CONDITIONS AND MEASURES IN GENERAL.

The activities of the Medical Department of the Navy during the past year have been unusually marked. Naval and military developments of this portentous epoch of military history are consequently being observed, and proper use made thereof in the plans and activities of our own service. Our medical officers detailed for observation purposes with the warring powers are possessing

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themselves of all facts available pertinent to the medico-military aspects of naval life. The bureau has been most fortunate in detailing for this duty officers most highly fitted for this important duty. The excellent report of Surg. Fauntleroy, elsewhere referred to, represents only a very small part of the valuable material which has reached the department.

The usual routine work of the Medical Department is constantly on the increase, added to which are extensive considerations of many practical problems in connection with questions pertaining to the health and welfare of the personnel, to organization, preparedness for war, aviation duty, submarine hygiene, preventive medicine, etc.

The work of the bureau has also been extending with many new responsibilities in connection with the thousands of workmen employed in our navy yards, the important work in connection with our forces in Haiti and Santo Domingo, and the efforts to improve the sanitary and living conditions in Haiti imposed upon us by our recent treaty with that nation, a work that will equal the sanitation of Panama.

HAITI AND SANTO DOMINGO.—Haitian affairs have resolved themselves into the formation of an orderly system of government, in which the United States is doing its utmost to lend assistance consonant with the preservation of a Haitian national integrity.

The treaty signed at Port au Prince on September 16, 1915, forecasted the formation of the Haitian gendarmerie, and the Congress of the United States provided by an act approved June 12, 1916, for a stable constabulary which is officered by members of the United States Marine Corps, and a sanitary supervision of the same by medical officers and hospital corpsmen of the United States Navy.

A careful preliminary sanitary survey of public health conditions was made in the early days of occupancy by Passed Asst. Surgs. H. A. May and P. E. Garrison, United States Navy, embracing observations on natural conditions, description of the existing sanitary and public health situation, discussion of Haitian public health laws, organization, and equipment, with specific recommendations. This has been a material aid in properly organizing new lines of endeavor and in proposing sanitary legislation.

A report upon the tropical diseases prevalent in Haiti has been prepared by Dr. Garrison. This report covers a period of practically one year of observation and laboratory study at the native hospitals. Annual curves show the relative prevalence of the more important diseases during the different seasons of the year. Malaria and the intestinal infections show very striking seasonal exacerbations. These studies establish the fact that Haiti, as a place of residence, presents no special dangers to foreigners from the viewpoint of health, with the single exception of malaria, against which it is possible to take effective precautions.

Our medical officers, acting in amicable unison with a commission of leading Haitian physicians, have gone over the existing laws relative to public health matters, and new laws have been drafted making necessary changes. Certain of the more important of these changes are now being put into execution under the present régime of military control until such time as the proposed alterations of the Haitian statutes can be secured.

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Complete plans for the gradual rebuilding and equipment of the Haitian general hospital and medical school are ready to be put into execution as soon as the financial matters of the government are settled. It is estimated that this project can be completed in about five years at a total cost of approximately $100,000.

The proposed reorganization of Haitian public health service is based upon the organization which was found to work with such satisfactory results in the Philippines, certain consideration being given to the French ideas and the local customs. It provides for the employment by the Haitian Government of American specialists in the various branches of the medical sciences, and for the establishment of reciprocal relations between the Haitian Government and the Governments of the United States and the Latin-American Republics in public health and sanitary matters. This I believe to be of particular importance in breaking through the isolation from which Haiti has always suffered in matters medical as well as economic and political.

A gradual process has finally evolved a systematized gendarmerie, the greater part of the work of attending to medical and sanitary details having been ably handled by Passed Asst. Surg. F. X. Koltes, United States Navy. This officer has been appointed director in accordance with the provisions of the above act, and has as his assistants the following inspectors of the gendarmerie: Asst. Surgs. John T. Borden and J. B. Helm, United States Navy, and 3 hospital stewards, United States Navy, with rank of first lieutenants, and 6 hospital apprentices, first class, United States Navy, with rank of second lieutenants.

Santo Dominican revolutionary outbreaks necessitated the presence of an armed force of United States Marines in May of this year. A portion of the expedition in Haiti was detached for this purpose, together with forces from the various ships available, and these were reinforced by orders early in June to the fourth regiment, then stationed at San Diego, Cal.

Headquarters landed at Santo Domingo City at 7 a. m., May 22, and organized as the United States expeditionary force operating ashore in Santo Domingo, with Passed Asst. Surg. N. T. McLean as chief surgeon, and the following is quoted from the latter's report:

"Inspection of the camp sites, fort, palace of justice, and hospitals of the city was immediately made. Sanitary conditions of camp sites were generally good; of the fort, palace of justice, and the site on the east bank of the river, bad. Sanitary work was already under way at the fort and palace of justice. The various hospitals in the city were crowded with Dominican patients and offered no possibility of use by our troops without causing disorganization and hardships to the civil practitioners and their patients. Passed Asst. Surg. Allen had obtained permission from the sisterhood operating the Hospital Beneficencia to use for a few days a portion of one ward in the hospital and at the time of inspection had 10 patients therein. Acting under instructions from the commanding officer to establish at the earliest possible moment a field hospital capable of accommodating the estimated sick and injured from the troops already in Santo Domingo, en route, and anticipated, every offered site or building was inspected. On May 23 an almost completed suitable building was found. This building is constructed of reinforced

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concrete, has 30 rooms, 6 bathrooms, its own water supply (38,000 gallons potable), and lighting system (acetylene); has cot room for 130 patients, with ample room for the housing of 12 hospital corpsmen, the necessary storerooms, kitchen, dispensary, operating room, offices, etc. The building was rented on May 24, and 17 patients transferred to it on May 26. While considerable minor construction is still under way, the building at date of this report has already proved its suitability for our needs. The local sanitary condition of the city of Santo Domingo is good. Local authorities are at the present time vaccinating all the school children. They maintain a fairly rigid quarantine against Porto Rico, although our advices have not shown any new cases at Ponce or San Juan since June 1. Malaria is a menace, but not more marked than would be expected in any subtropical community. No quinin prophylaxis is being used. The water supply is very poor; lack of rain has depleted practically all cisterns of the one source of potable water. At present it is necessary to purchase distilled water from the ice plant for the use of the troops. A summary of the situation, in so far as the welfare of our troops in this Republic is concerned, does not suggest the likelihood of marked damage to their health. Santo Domingo City requires more care than either Puerto Plata or Monte Cristi, where the detachments are located in tents on well-drained land, with good water supply at both places. Mosquitoes and flies are a menace at both these places, but with completion of work already begun little trouble is anticipated."

RELIEF WORK.—In addition to the military activity ashore in Haiti and Santo Domingo the medical officers of the service have been of aid in various contingencies demanding humanitarian aid.

During the last five days of January, 1916, the continuous heavy rainfall in San Diego, Cal., and surrounding country caused an enormous rise of water in the Tia Juana River Valley; the river overflowed its banks and carried everything before it over a fertile and populous area comprising thousands of acres. The adjoining Otay Valley was likewise depopulated by the bursting of the lower Otay Dam, and homes, barns, railroads, orange and lemon ranches, and fertile soil were all swept out into San Diego Bay. Hundreds of people were left homeless and a few were drowned.

Medical attention was furnished to about 175 inhabitants by Asst. Surg. C. I. Wood, United States Navy, assisted by five hospital corpsmen. By February 15 the roads became passable to vehicles, and near-by physicians could be summoned; consequently naval relief was withdrawn.

During the recent uprising in China consequent upon the announcement by Yuan-shi-kai that a sovereignty existed with himself as emperor, considerable fighting took place in the Yangtze Valley. Asst. Surg. W. B. Hetfield, United States Navy, then at Chungking on duty on the U. S. S. *Monocacy*, laudably associated himself with the local Red Cross Society and extended material assistance in caring for the many wounded. A detailed report of this was presented in the October, 1916, number of the Naval Medical Bulletin.

Much assistance has been extended to American refugees in the coast towns of Mexico by medical officers of ships of the Navy which have received and transported these unfortunates. This has devolved an unusual line of cares upon the medical department, including the

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practice of obstetrics. Not only has the anomalous status of women and children on shipboard had to be handled, but constant guard has been necessary under the unusual conditions prevailing to prevent the access of epidemic diseases to the naval personnel under the medical officer's charge.

RECRUITING.—The following table presents the statistics for the calendar year 1915 on the total number of applicants for enlistment in the Navy and Marine Corps, showing the number rejected for all causes and the causes for rejection:

Total number rejected for all causes	74,280
Total number of applicants	106,392
Causes of rejection:	
Deformities	4,292
Ear—	
Defective hearing	958
Other diseases of ear	391
Eye—	
Color blindness	2,361
Defective refraction	9,260
Other diseases of eye	753
Flat feet	8,188
Hemorrhoids	1,105
Heart affections	3,149
Hernia, or tendency to	1,647
Mental diseases	273
Nasal abnormalities	597
Skin diseases	1,196
Teeth, defective	7,751
Tuberculosis, or suspects	730
Varicocele and varicose veins	4,598
Venereal diseases	1,455
Other miscellaneous causes	25,621

The percentage of acceptances is 30.18. During the last four years, owing to a full or relatively full condition of the complement, the large number of applicants, and consequent ability to exert more selection, the percentage of acceptances has decreased from an average for the previous six years of 52.67 to the present 30.18. This speaks volumes for the improvement in the physique of our personnel. Of the various causes for rejection, eye conditions are mainly responsible, closely followed by flat feet, defective teeth, varicosities, deformities, and heart affections. The present rigidity of physical requirements not only insures a fine standard of men but helps to lighten the pension load of the Nation in future years. The urgent need of more men, as would happen in time of war, could be met by a decided lowering of the bars without entailing the acceptance of any markedly deficient types. The contending European nations are, from our standpoint, most lax in their physical standards, particularly so in eye requirements.

THE SALVAGE OF THE *F-4*.—Shortly after the preparation of my report of last year final observations were received in connection with the final steps of the salvage of the *F-4*, and were published in full in the Naval Medical Bulletin of January, 1916.

Passed Asst. Surg. G. R. W. French's most scientific and detailed accounts of the diving operations bringing about the final raising, and Surg. W. Seaman's account of the recovery, identification, and disposition of the remains, close this most unfortunate incident in our naval history. The resistance of teeth to ravages of decay gave valuable evidence in establishing identity by crowns, fillings, etc.,

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and emphasizes the need of a careful entry of all such upon the health records. It was also noted that shoes survived most markedly and that "the feet covered by the shoes were in an almost perfect state of preservation; the nails were in all cases intact, hair still adherent, the skin intact and natural in color. * * * It has been suggested that metal tags, light in weight—aluminum, for instance—be attached to officers and men, especially those doing submarine work, and worn about the neck. Experience in this accident teaches that if worn about the neck they would have been useless, as all the skulls were separated from the bodies; but that if worn about the ankle they would have remained. It would be well to insist on a regulation requiring that the heels of all shoes be marked with the initials of the owner cut into the leather."

REPATRIATION OF REMAINS OF SPANISH PRISONERS OF WAR.—On April 12, 1916, with appropriate ceremonies, the remains of 31 Spanish seamen who died in 1898 while patients at the Naval Hospital, Portsmouth, N. H., were transferred to the naval transport *Almirante Lobo*.

By direction of the President of the United States the Secretary of State had arranged with the Spanish ambassador for the return of the bodies, and through the Secretary of the Navy gave directions that, as a special mark of respect to these brave men who gave their lives to their country and as a mark of esteem for the Spanish Government, the United States should undertake all of the work of disinterment, preparation, and removal of the remains and their delivery on board the transport.

This bureau had a representative in charge of the details of supervising proper disinterment, etc. As the official representative of the Government, Rear Admiral Austin M. Knight transferred custody of the bodies to Col. Don Nicolas Urculla y Cereyo, military attaché of the Spanish Embassy.

HOSPITAL CORPS TRAINING SCHOOLS.—The training schools for recruit hospital apprentices have continued to be unqualifiedly successful, and the results of this training, now becoming evident, more than justify the expenditure of the time and materials.

For the fiscal year ending June 30, 1916, the monthly average number of men under instruction at the school at Newport was 122.25, and at the school at San Francisco 61.9, or a total of 184.15 men. The courses have been improved, the subjects augmented in number, quality, and quantity, visits have been made to special laboratories, disinfection plants, etc., in the near vicinity, and laboratory and drug work of the stations has been taken over, particularly at San Francisco. Much practical instruction was thus afforded and more satisfactory and prompt examinations and reports obtained by the medical officers on stations concerned. To such men as show special aptitude, special courses in laboratory work and examinations are given. Special instruction upon the circumstances and conditions which may be encountered on duty with expeditionary forces has been given in connection with the drills and hygiene. Many men have become interested in the work and instruction obtained by hospital apprentices at these schools, and are showing an unusual interest in desiring to take up the rating. One thing only seems to influence them unfavorably, and that has been the lack of that opportunity of advancement afforded in other branches. It would appear

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that these two schools have each made a very favorable impression at the station concerned, not only by the presence of a better trained type of hospital apprentice but also by developing a new confidence in the endeavor of the medical department to more efficiently care for the sick.

The opportunity afforded for the elimination of those men who are found undesirable, inapt, or poorly adapted to the work of the Hospital Corps has enabled us to weed out a great proportion of those who formerly caused difficulties at other stations and on ships.

It is hoped that with these schools, the presence of a better quality of hospital apprentice and the additional intermediate ratings, that greater contentment and efficiency, and satisfactory advancement may be developed among the men of the corps.

The medical officers under whom the schools have had their development and guidance have devoted themselves most conscientiously and patiently to the work, and deserve great commendation for their untiring efforts.

The several hospital stewards who have been assigned as instructors at the two schools have performed their difficult tasks in a most creditable and satisfactory manner.

NAVAL MEDICAL CORRESPONDENCE COURSE.—Upon recommendation of the bureau the Navy Department on January 24, 1916, authorized the establishment of a correspondence course for medical officers of the Medical Reserve Corps. This course is also open to acting assistant surgeons of the Navy and to medical officers of the Naval Militia.

Acting assistant surgeons and officers of the Medical Reserve Corps on active duty are required to take the course, unless they have previously completed the regular course of instruction at the Naval Medical School.

The course is administered by the Naval Medical School. The object is to promote the efficiency of these officers by systematic instruction in naval forms, customs, regulations, and procedures.

The course will cover a total period of approximately one year and will be divided into two parts, the first part being devoted to instruction in the Navy Regulations and Naval Instructions as they pertain to shore duty. The second period will follow immediately after the first and will be devoted to the medical officer's duties afloat.

It is considered that the principal duties to which these officers would be ordered in case of emergency, where they would be the only medical officer attached, would be to recruiting duty on shore or as the medical officers of auxiliary ships. Therefore special efforts will be made to the end of preparing them for these duties, so that if called upon their services would be more valuable at once and they would be more confident and better satisfied with their work than would be the case were they without any preparation or knowledge of service conditions and procedures.

The subject matter furnished the student officers consists of:

(*a*) The Manual for the Medical Department of the U. S. Navy.

(*b*) Those portions of the Navy Regulations and Naval Instructions upon which medical officers of the Naval Militia are examined for qualification for mustering into the service of the United States, as provided by General Order 153, appendices A and B. Also all articles referred to in the Manual for the Medical Department, which

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are not included in General Order 153. All these extracts have been printed in book form, preserving the original article numbers and marginal notes.

(*c*) The circular relating to the physical examination of recruits.

(*d*) Bulletins which will be issued from time to time, dealing with such matters as uniform, receipt of orders and reporting for duty, honors, ceremonies, and salutes, the relations of officers to each other and to the enlisted personnel, duties with landing forces, naval hygiene, etc. The object of these bulletins is to give the officer some knowledge of the customs of the service and of his military position.

At intervals of about three weeks study matter will be assigned, question papers issued, and answers required, which last will be criticised and returned to participants.

The first session of the course opened early in October, 1916.

A description of the course and its purpose and an invitation to enroll was sent to all eligible officers of the Medical Reserve Corps and of the Naval Militia, and the responses received indicate a degree of interest that is very commendable, especially when it is considered that most of these officers are busy men, whose time is consumed by private practice, literary and research work, or teaching. On June 30, 98 officers had replied to the invitation, of which number 91 accepted and 7 declined.

PUBLICATIONS.—The issue of a quarterly professional publication commensurate with the dignity of the Medical Department continues to be the aim of the bureau in publishing the Naval Medical Bulletin. This has now finished its tenth year and has attained the excellent standing that it has in military and public health medicine because of the unremitting backing it has had from the necessarily very limited number of this corps from which it emanates. During the past twelve months 85 original contributions have been issued through its pages, embodying many lines of activity and thought, including not only strictly medical and surgical treatment, technic, etc., but also medico-military tactics, discussion of hospital ships, typographical data from the world over, studies on lighting, the mechanics and physics of diving, study of submarine ventilation, etc. The department of reviews has contained 190 abstracts of the progress in medical sciences, for which the bureau is indebted to the voluntary labors of 14 medical officers who devote a considerable amount of their time to this extra duty. Frequent reviews are also received from other officers throughout the service, indicating their own professional zeal, and stimulating that of others in the corps.

What I consider the ablest contribution on the medical side of the present war emanated from this bureau in December of last year, namely, the "Report on the Medico-Military Aspects of the European War" by Surg. A. M. Fauntleroy, United States Navy. Under orders from the Secretary of the Navy, Surg. Fauntleroy sailed from New York on April 24, 1915, and on arrival in France reported at Paris for duty as assistant to the naval attaché. His position as instructor in surgery at the Naval Medical School, Washington, D. C., had necessarily kept him in touch with all current advances in military surgery and aided him in the preparation of his most excellent report after his comparatively limited months of observation behind the allied armies on the western front.

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The report is of 146 pages, with 218 halftones and line cuts, well selected and presented. Four thousand copies were printed for the Bureau of Medicine and Surgery by the Government Printing Office for distribution to the officers of the service and the profession throughout the country. The demand was naturally one to quickly wipe out this supply, and a resolution for a reprint as a congressional document was passed by the House of Representatives, but has unfortunately not met the approval of the Senate. Copies are for sale, however, by the Superintendent of Documents, Government Printing Office, from his supply, at 60 cents per copy.

Another valuable booklet issued by the bureau this year is the Medical Compend for Masters of the Naval Auxiliary Service, for use with the medicine box, United States Navy. The frequent occurrence of medical and surgical emergencies aboard auxiliaries where only the medicine box is available under the lay direction of the master, made it advisable that a practical compend be evolved explaining the uses and abuses of the supplies furnished by the bureau, as well as pointing out in a simple, easily comprehended way the principles of first-aid, diagnosis and treatment of the commoner diseases, the routine to follow in using hospital facilities, procedure in case of death on board, and a lucid chapter on the primal principles of quarantine and disinfection. This booklet was prepared by the officers of the bureau and the latter are to be commended for the way in which they carried out their task.

The Drill Book for the Hospital Corps was rewritten and issued in the fall of last year.

A circular entitled "The Navy as a Special Field for Medical Work," with numerous illustrations, has been issued as an exposition to the medical profession of the opportunities for work and advancement offered by a service life.

In connection with the correspondence course for the Medical Reserve Corps, mentioned on page 42, the bureau has issued two publications. The extracts from United States Navy Regulations and Naval Instructions includes all articles containing references to the duties of medical officers ashore and afloat. No index is supplied as this is intended as a quiz compend, and no alterations have been made from the strict reading of the navigational publication.

The second correspondence-course publication is a revision of the circular relating to the "Physical Examination of Recruits for Enlistment in the Navy and Marine Corps." Changes have been made in the former edition in the interests of clearness and progress. Particularly has the chapter on finger prints been revised and expanded, with addition of new plates. Three new chapters have been added, giving supplementary notes in recruiting, hints for the inexperienced in naval and marine recruiting, and the physical examination of the personnel of the Naval Militia prior to being mustered into the service of the United States.

The revision of the supply table, a large work, has been completed and issued to the service. In addition to the standard supply table two special supply tables were prepared—one, the dental supply table, and the other, the medical outfit and supply table for expeditionary service. The latter supplied a long felt want and reflects great credit on the several officers who assisted in its preparation.

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At the present time the Handy Book for the Hospital Corps is undergoing a complete revision. This book has been a most valuable aid in the instruction of members of the Hospital Corps afloat and ashore, and must be considered a large factor of efficiency for that corps.

* * * * * * *

PERSONNEL.

MEDICAL CORPS.—Under the provisions of the act of August 29, the Medical Corps will, with the present strength of the personnel, consist of a corps of over 600 medical officers, there being 6.5 medical officers allowed for each 1,000 officers and enlisted men of the Navy and Marine Corps. For some time past the shortage of medical officers has been seriously felt, ships, stations, and hospitals being run on reduced complements, and the increase provided represents the most urgent need of this corps. These officers will be distributed one-half of 1 per cent in the grade of medical director with the rank of rear admiral; 4 per cent in the grade of medical director with the rank of captain; 8 per cent in the grade of medical inspector with the rank of commander; the remaining 87½ per cent being distributed in the lower grades. In the lower grades medical officers will be promoted with officers of the line with whom and next after whom they take precedence. The act provides for the first time medical officers with the rank of rear admiral, in addition to the Surgeon General.

During the year ended June 30, 1916, 11 medical officers were admitted to the corps. The loss by retirement, resignation, or dismissal was 6, leaving the total strength of the corps on the above date 332. In making up the last class for the Naval Medical School 57 permits were issued. Of this number 17 successfully passed the preliminary physical and professional examinations; one of the candidates after successfully passing refused to accept his commission. Of those who failed 15 failed physically, 15 professionally, and 1 withdrew; 15 candidates failed to appear. At the final examination held after the course at the Naval Medical School, 11 successfully passed the examination and were commissioned assistant surgeons in the Medical Corps.

The activities of the Medical Corps during the past year have increased to a considerable extent. Every effort has been made and is being made to obtain properly qualified men for the Medical Corps, and plans have been developed to be put in force during the ensuing year which it is believed will decrease somewhat our deficiencies. The bureau realizes that for several years to come there will be a large demand for qualified medical officers in the Government services, and the problem of getting additional medical officers will not be an easy one.

MEDICAL RESERVE CORPS.—During the year, owing to the shortage of medical officers, it has been necessary to continue the services of a number of officers of the Medical Reserve Corps and to place additional officers of this corps on a duty status. The total number of officers in this corps, not candidates for the regular corps, is at present 109, 20 of whom are at present employed on active duty. During the year the bureau has developed a system of keeping track

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of these officers and of their fitness for duty in event of emergency, receiving a report from them each six months and otherwise keeping in touch with them. Valuable assistance in certain specialties has been rendered by members of this corps at the Naval Medical School and at some of our naval hospitals, and they have manifested a desire to maintain a friendly and a cooperative professional relationship with the regular officers on active service, and to improve their knowledge of naval conditions to the end that their services may be of greater value should they be called into active service.

DENTAL CORPS.—During the year the small Dental Corps has rendered a considerable amount of dental service to the Navy and Marine Corps, as may be seen from the statistical record incorporated in this report. About one-third of the dental officers are at present serving on a sea-duty status, but the larger amount and also the most active dental work must be accomplished at the training stations, marine rendezvous, and larger navy yards and stations. Congress has now provided a more liberal allowance of these officers, and it is hoped that additional officers will soon make the services of a dentist available to a greater number of the officers and men of the Navy than heretofore. The Dental Corps has been completely reorganized and placed as near as practicable on the same basis as that of the Army. The act provides for one dentist for each 1,000 of the enlisted men of the Navy and Marine Corps. The new reorganization provides that these officers will hold the ranks of lieutenant (junior grade), lieutenant, and lieutenant commander, promotion to the rank of lieutenant being made after five years' service, and to lieutenant commander after 20 years' service. Previous legislation was incomplete, and did not provide for dental officers above the grade of assistant dental surgeon. The act also provides for the reorganization of the Dental Reserve Corps, granting certain recognition to the services of these officers if employed on active duty, as well as to officers of the Medical Corps under the same circumstances. The Dental Corps is a new experiment in the Navy and its usefulness will be better demonstrated as time goes on and its influence upon the personnel of the Navy has had time to accumulate.

HOSPITAL CORPS.—Following the recommendations repeatedly made during my present incumbency with a view to developing a more effective Hospital Corps and offering through opportunity for promotion suitable inducements for men to reenlist, there have been included as a part of the naval appropriation act passed by Congress this year provisions reorganizing and increasing the efficiency of this corps. These provide, among other things, for the appointment of as many pharmacists and chief pharmacists as appears necessary from time to time to adequately perform the duties demanded by the growing naval service. Lack of such provision has long embarrassed the medical department, and it is sincerely hoped that additional men in this grade may become available without undue delay, as their services are urgently needed at once throughout the service.

The act provides further for the much needed ratings of petty officer, first class; petty officer, second class; and seaman, first class, interposed between those now existing (chief petty officer, petty officer, third class, and seaman, second class). By means of these ratings a complete and satisfactory reorganization, classification, and

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development of the corps is made possible, establishing it upon the same plane as the seaman and special branches.

It is believed that the flow of promotion thus afforded will lead to contentment of the men, a willingness to enter the corps in place of the former hesitancy, more competent and desirable applicants, and greatest of all encouragement to those already trained and experienced in the Navy work to reenlist repeatedly and remain in the corps, thus conserving effort and inviting initiative on the part of medical officers to train and educate men of the lower ratings. These ratings also afford opportunity for a better classification and amalgamation into the corps of men from civil life in the event of war.

The act also provides that the number of men of the Hospital Corps shall be 3½ per cent of the total enlisted strength of the Navy and Marine Corps. Should it be possible to enlist this number immediately it is believed that the corps will be sufficiently numerous to fill all complements and lend to an elasticity in assignments to such a degree as to bring satisfaction to all concerned in place of our present embarrassment. It will also entail a saving in money for transportation from place to place of available men, as it is expected that there will always be men on the ground awaiting general detail.

The advantages of this act appear as follows:

It provides a sufficient number of men to make the corps flexible, details easier, and to maintain full complements at all times, at all stations, and on all ships.

It provides intermediate ratings, better opportunity for promotion, and should stimulate enlistments in the corps not only in greater numbers but of more intelligent men.

Men who have ability for a certain amount of advancement may attain their ultimate standing rather than remain in an inferior rating because of a lack of opportunity.

It encourages competent men trained at Government expense to reenlist and remain in the service rather than seek a more promising field where this knowledge is an asset.

It eliminates discontent now existing in the Hospital Corps because men are denied that promotion provided for men in other branches of the service.

It provides for members of the Hospital Corps in keeping with ratings of other branches of the service.

It gives the commissioned warrant and warrant officers of the Hospital Corps the same status as is now or may hereafter be held by other commissioned warrant and warrant officers of the Navy.

It makes possible the utilization of pharmacists and chief pharmacists in places now occupied by junior medical officers, whose rates of pay are considerably higher, thus increasing the number of available medical officers and conducting the affairs of the Government at a less expense.

The efficiency of the Hospital Corps should be greatly increased.

The field of employment of the hospital corpsmen continues to grow extensively, the demand being now far beyond the supply of men. The present number of men has for some time been becoming more and more inadequate to meet the service necessary in supplying medical attention.

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There has been no increase in the number of hospital corpsmen during the past year. On June 30, 1916, there were 1,585 (as against 1,584 on June 30, 1915), divided as follows: Hospital stewards, 365; hospital apprentices, first class, 740; and hospital apprentices, 480. This number is entirely inadequate properly to man all ships and stations and provide for special details and expeditionary forces.

There are about 75 men of the Hospital Corps now on duty with the marine expeditionary forces in Haiti and Santo Domingo.

It has been carefully computed that at least 2,255 men are required to make up the complements of stations and ships now in actual service or about to be commissioned. This number, however, does not provide for the emergencies always arising.

NURSE CORPS.—During the year 38 nurses have been appointed to and 41 have left the corps. Of this number 14 were given honorable discharge, having completed the term of service for which they were appointed. The majority of these nurses are reserve nurses and are available for duty should their services be required in any emergency.

Four names have been added to the list of seven who are eligible for promotion to the grade of chief nurse, but the number of stations to which nurses are detailed is so small that there is little opportunity for the promotions indicated by these recommendations.

The peculiar work at Guam has materially increased and additional nurses have been detailed to that station. Efforts have been made to place the instruction to the native nurses more nearly on the plane of training-school methods. Regular uniforms and caps have been authorized, and these changes have stimulated pupils and instructors to greater interest and consequent efficiency.

The first class of Samoan nurses was graduated this spring, and the exercises were made as interesting and attractive as was possible. The nurses were given diplomas signed by the commandant and governor of Samoa, and they were also given gold pins of appropriate design on which were engraved the names of the nurses and the date of their graduation. These nurses are now detailed to visiting nursing work in the various outlying districts. At stated intervals they return to the native hospital for review and further instruction. The success of this work in Samoa is demonstrated by the increase in the present class and the number who are now applying for admission in the class of 1918.

The civilian positions which require the services of trained nurses increase each year, and the pay and privileges offered usually exceed those allowed to members of the Nurse Corps; therefore this service appeals less favorably to the large number who prefer institutional work to private nursing. It is desirable to retain nurses who by length of service have become familiar with military environment, and it is also desirable to offer inducements to secure nurses who have established records for efficiency.

W. C. BRAISTED.

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REPORT OF THE JUDGE ADVOCATE GENERAL.

DEPARTMENT OF THE NAVY,
OFFICE OF THE JUDGE ADVOCATE GENERAL,
Washington, October 1, 1916.

From: The Judge Advocate General.
To: The Secretary of the Navy.
Subject: Annual report of the Judge Advocate General of the Navy.

The past year has been a notable one in the operations of this office, in the direction of accomplishing much valuable work of a permanent and constructive character. Among the various items which this includes, the following are deemed particularly worthy of mention:

(*a*) The system of probation under suspended sentence introduced on trial during part of the previous year has been established on a permanent basis after fully demonstrating its merit. As a result, a reduction of more than 66 per cent has been effected in the number of men imprisoned under previous systems, the number of naval prisons has correspondingly been reduced, discipline has been improved, as is almost unanimously testified to by commanding officers, and at the same time a saving to the Government is assured of more than $850,000 each year in administering the penal system of the Navy. The number of courts-martial has been materially reduced, the number of discharges in an honorable status materially increased, and discharges in other than an honorable status have also materially decreased.

(*b*) A reduction of approximately 55 per cent has been accomplished in the average time—already short—elapsing between the confinement of an accused for trial by general court-martial and final disposition of his case. Except where length of record prohibits, all routine cases of general courts-martial convened in the United States are reviewed by the Judge Advocate General, acted upon by the Secretary of the Navy, and promulgated, upon date of receipt in the department, cases tried at the most distant stations in the United States, namely, on the Pacific coast, being promulgated by radio.

(*c*) Legislation has been secured amending the articles for the government of the Navy in various particulars in which they had become antiquated and inadequate for conditions resulting from the growth and present organization of the Navy. Defects in the former articles which tended to hinder the efficient administration of justice in the Navy and Marine Corps, produce needless delays and develop red tape principally by imposing an undue mass of detail upon commanders in chief or senior officers present, have thus been remedied to the permanent benefit of the service and particularly the efficient administration of discipline within commands.

(*d*) The court-martial orders have continued to be published on an enlarged scale and in improved form, in accordance with the practice inaugurated during the previous year. Legal decisions of value to the Navy are included in these orders, even though not always rendered in court-martial cases. The material published in each order is classified and arranged under convenient reference headings, making it easy for the service to consult these orders and readily locate the department's ruling upon any particular point, to an

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extent that was not possible in the past. About 200 string binders to facilitate keeping them have been supplied convening authorities, permanent courts-martial, and officers requesting them.

(*e*) An index-digest of court-martial orders and legal decisions and opinions for the calendar year 1915 has been published, similar to that issued in 1914, and in addition about 200 copies of all court-martial orders for the year, together with said index-digest, have been bound and issued to commanders in chief, permanent courts-martial, vessels, marine barracks, and others having frequent occasion to refer thereto. These index-digests have proved invaluable to naval courts, greatly reducing the number of errors in matters of law and procedure and the consequent delays and complications in final action.

(*f*) The Naval Digest covering decisions of the department in court-martial cases, extending back to the year 1879, which has been in course of preparation for two years, is now practically completed and and is expected to be published and issued to the service coincidently with the publication of this report. This Naval Digest will also contain numerous legal decisions of the Navy Department and opinions of the Judge Advocate General not heretofore published, and many decisions of courts and opinions of the Attorney General. It will constitute an abridged treatise on naval law, precedents, and decisions. I regard it as one of the most valuable products of my incumbency.

(*g*) The Manual for the Government of the United States Naval Prisons and Detention Systems has been completely revised to conform to the extensive changes made in the system of naval penology elsewhere described, and the new edition has been issued to the service.

(*h*) The Forms of Procedure for Courts and Boards in the Navy and Marine Corps, issued in 1910, has been completely revised under the title "Naval Courts and Boards," and should be published to the service soon after the publication of this report. The completion of this revision was purposely delayed in anticipation of the important changes made at the last session of Congress in the laws relating to the administration of discipline, which changes it was desired to incorporate in the revised work. Under the revised forms the procedure of courts and boards will be materially simplified, greater uniformity obtained, and the occasions for substantial errors in proceedings reduced to a minimum. There have also been embodied in this revision copious notes covering numerous legal questions which may be expected to arise before naval courts and boards, making this book in effect a complete manual of procedure, both as to law and forms.

(*i*) The compilation, "Laws Relating to the Navy, Annotated," authorized by a Senate resolution at my suggestion and with your active indorsement, has progressed favorably, about 600 pages now being in type or ready for the printer. This work, which gives every indication of being the most important individual contribution to naval law that has been produced under our Government, should be ready for publication during the coming year.

(*j*) A course of practical instruction in military law was inaugurated at the Naval Academy by this office upon request of the superintendent, as part of the curriculum for the graduating year, the course consisting of lectures and moot court-martial work prepared by the officers and civilian lawyers in this office and conducted by

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them in four periods assigned by the superintendent. By these means, the general subject of military law was briefly covered and midshipmen were informed as to the object and jurisdiction of military courts, their relation to the civil law, how to keep the record of court-martial proceedings, how a trial should be conducted, the method of examining witnesses, and other salient features of the practical work falling under the jurisdiction of this office. The reports received from the Naval Academy were enthusiastically favorable, and the superintendent urges a continuance of this method of military law training at the Naval Academy in future years.

(*k*) The subject of international law, which in the organization of the Navy Department had not previously been definitely provided for, has, upon my recommendation, been assigned by regulation to this office. In preparation for the new duties thus created, I required seven officers belonging to this office, including myself, to take a special course in international law at a local university. In addition, a retired officer has been assigned exclusively to the international law desk in this office, so that the Department will be afforded expert advice upon such matters, and the study of international law developed along lines most favorable from a naval point of view. This is the more important because of the fact that, as a result of the present European war, a vast amount of international law will be made and it is contemplated that, when required, the specialist in this office will be available to represent the Navy as a delegate at international conventions and conferences where it may be desirable to have someone able to speak with authority concerning naval subjects.

(*l*) Regulations governing internment of belligerent vessels in United States ports were framed by this office and, having received the approval of the Chief of Naval Operations and the General Board, are now in course of publication by the Department.

(*m*) Preparations have been made by this office with reference to the treatment of prisoners of war, including detailed arrangements for their internment, and the drafting of proposed regulations governing their care and custody.

(*n*) Preparations have also been made for the examination of various classes of officers and men who will enter the Navy immediately upon the outbreak of war, and for the detail of Reserve and Volunteer officers to permanent courts-martial to replace regular commissioned officers, who would be required, in the event of war, to proceed to their regularly assigned mobilization stations.

(*o*) Greater cooperation between the civil and naval authorities has been established to mutual advantage, with the result that this department has secured the utmost assistance of the Department of Justice as well as State authorities in reference to cases in the civil courts involving the naval personnel, and has reciprocated by extending the maximum assistance to the civil authorities in cases where persons in the Navy are wanted for trial or as witnesses in prosecutions in the civil courts.

GENERAL WORK OF THE OFFICE.

The work of the Judge Advocate General's office is closely interwoven with the activities of every branch of the naval personnel. The office is officially acquainted with every officer appointed to the

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Navy or Marine Corps, either from civil life or from the enlisted personnel. This acquaintance commences with the officer's examination for appointment, and follows him throughout his career in the service, as he is examined for promotion from grade to grade; as questions arise concerning the emoluments to which he is entitled under the varying conditions of his service; as he encounters difficulties in the execution of his duties upon which he requires legal assistance; as he is, perhaps, brought to account before a court-martial or court of inquiry for his official or private misconduct; and finally as he appears before a retiring board upon becoming physically incapacitated for the arduous duties of his office; or, should he die in service, the cause of his death must be investigated by a board of inquest, followed perhaps by the more formal court of inquiry to determine whether or not his death was in line of duty or the result of misconduct on the part of himself or any other person in the Navy. This is necessary in order that the Department's records in his case may be closed and information obtained to determine whether his legal beneficiary may be paid the death gratuity and pension authorized by statutes, and whether disciplinary proceedings should be had against any member of the naval personnel for responsibility in connection with any matter developed by the inquiry as possibly contributing to the death.

The complete record of every officer in the Navy and Marine Corps, covering his entire career from his appointment to the termination of his active service, must be filed and preserved by the Judge Advocate General, whether the officer has been fortunate enough to enter the ranks of naval heroes or has had the misfortune to disgrace his uniform. This record embraces the officer's complete set of efficiency reports relating to every duty which he has performed in the service, the letters of commendation or reprimand which he has received, his examinations for appointment, promotion, and retirement, his trials by court-martial—in short, it is a complete history of the officer's career.

Similarly, in the case of the enlisted personnel, every question of a legal nature, extending from the recruiting to the discharge, promotion, retirement, desertion, or death of an enlisted man, is under the cognizance of the Judge Advocate General and must be submitted to him for opinion.

Likewise, all legislative matters relating to the naval personnel, from the drafting of statutes for submission to Congress to their interpretation and application to actual service conditions, are assigned to the Judge Advocate General, as are also all matters relating to naval courts and boards, the custody and discharge of prisoners or their restoration to duty, applications for pardons, the relations existing between the naval and civil authorities, all matters of international law arising in the administration of the Navy, and a variety of other subjects of interest and importance to the service.

The duties of this office as briefly outlined in the above paragraphs are in intimate touch with the pulse of the service and directly affect the efficiency thereof. In accepting my appointment to the position of Judge Advocate General it was with the hope that I might effect certain improvements in matters falling under the jurisdiction of this office which my experience in the fleet had taught me were desirable. My previous experience with matters of a strictly technical nature

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as well as with those of a legal nature had impressed upon me the necessity of a modification of our laws in regard to administration of justice in order that they might conform to the recent remarkable growth and changes in the organization of the Navy; with the inadequacy of our naval publications in matters of legal procedure; with what I believed to be an unnecessarily expensive and cumbersome penal system; as well as with the necessity for the permanent assignment of international law and its allied features of an administrative nature falling under the jurisdiction of the Navy Department. It is therefore with satisfaction that I find myself able to report the successful accomplishment of the work which I had laid out for myself upon accepting my appointment.

The above paragraphs set forth in brief the achievements which have either taken place or have been completed during the past year. The other work of the office will be amplified under the following headings:

I. Administration of justice.
II. Officers' records.
III. Legislation.
IV. Legal questions, opinions, and decisions
V. International law.
VI. Miscellaneous.

I.

ADMINISTRATION OF JUSTICE.

This branch of the work of this office has been formed into a separate division of the office under the immediate charge of one officer, who has the exclusive assistance of several officers and clerks. This division handles all matters relating in any way to the administration of justice, commencing with the consideration of original reports against officers and enlisted men and passing through the various stages of investigation, the drafting of charges and specifications, preparation of cases for trial, the convening of courts-martial and making of changes in their membership, the reviewing of court-martial records, the drafting of action thereon, promulgation of sentences, imprisonment of offenders, and their restoration to duty or discharge from the service. It includes the administration of naval prisons and all correspondence relating in any way to the above subjects; also boards of inquest, courts of inquiry, boards of investigation, and the correspondence relating thereto. The work of this division is estimated as approximately 40 per cent of the work of the office.

The statistical data relating to the number of trials, number of boards of investigation and inquest, etc., as well as the number of prisoners, detentioners, and probationers, are hereinafter set forth in full in tabular form under the heading "Data relating to the administration of justice," pages 183 to 195 of this report. The following remarks are intended to cover in a general manner the operations of this division apart from statistics:

PROBATIONARY SYSTEM, GENERAL ORDER 110.

In my last annual report I dealt at some length with the apparent results following the adoption, during the previous nine months, of the probationary system of punishment commonly referred to in the

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service as General Order 110. I indicated that, though this system had been in operation too short a time to permit of definite comparison of its results with those obtained under the detention system which it largely replaced, nevertheless it was confidently believed from the data at hand that it would prove an epoch-making step in progressive naval penology. Reports of commanding officers at that time forecast its overwhelming advantages from the viewpoint of economy, discipline, and humanitarianism. Toward the end of the past year, in reply to a circular letter, many suggestions were received as to minor changes in the system. These were all carefully studied by a board consisting of one officer of high rank from the Bureau of Navigation and another from headquarters of the Marine Corps, both of whom had had practical experience with this system in actual service, and a third officer, detailed from this office, who was familiar with all of the correspondence and recommendations which had been received from the service on the subject. After thorough deliberation General Order 110 was redrafted by this board. This revision, which received the department's approval, was not published until recently, because of the administrative advantage of obtaining data covering one uninterrupted year of operation of the former order, by which we could judge with accuracy the effect of this new system. The revision, which has now been issued, makes few radical changes, the majority of the changes being intended merely to remove petty defects and clarify various points in the old order.

RESULTS OF DISCIPLINARY OR DETENTION SYSTEM.

In connection with last year's report a special effort was made to obtain accurate data concerning the final results which had been obtained under the detention system. The history of all men who had been transferred to disciplinary barracks was traced and accurate data collected as to the percentages of men who were restored to duty and who "made good," that is, those men who were discharged in good standing or who remained in the service in good standing for six months after unconditional restoration to duty. As this data covered several years it indicated accurately the results which were accomplished by the former system.

RESULTS OF PROBATIONARY SYSTEM (GENERAL ORDER 110).

General Order 110 having been in operation throughout the entire fiscal year, the data contained in this report accurately sets forth the results of this system and furnishes data for accurate comparison with the detention system.

Comparing the results obtained from the reports of last year in regard to the detention system with the results obtained since the inauguration of the probation system, and remembering that approximately the same class of offenders are now placed on probation under suspended sentences that were formerly confined in disciplinary barracks, we have the following figures:

	Successful.	Unsuccessful.
	Per cent.	*Per cent.*
Former detentioners restored to duty	32.4	67.6
Probationers under General Order No. 110	34.56	65.44

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The above statement shows that a somewhat larger percentage of probationers under General Order 110 have "made good" than was the case with former detentioners who were restored to duty. This means that under the present system the percentage of men who eventually "make good" is somewhat greater than was formerly the case when this same general class of offenders were sent to the disciplinary barracks and subsequently restored to duty after a term of nonproductive confinement. The result of this has been a steady further decrease in the number of naval prisoners, in the number of naval prisons, in the number of prison guards, and in the consequent expenses for this feature of naval administration. All of the above results would be vain and fruitless had they been obtained at the expense of discipline. It is therefore pertinent to examine that feature through the eyes of the commanding officers who have reported thereon. The effect of General Order 110 upon the discipline of the service was clearly set forth in last year's report, which stated in referring to the 125 replies of commanding officers concerning the effects of this order upon discipline:

As a final summary of these letters received to date, it may be stated that every reply from commanding officers of marines expressed the opinion that the order had had a beneficial effect upon discipline, or that it had reduced the offenses of unauthorized absence and drunkenness, several officers furnishing statistics of their commands as a basis for their opinion. Of more than 100 replies from flag officers and commanding officers of vessels only four expressed themselves adversely, while the remainder varied from noncommittal replies in the cases of two or three, through various stages from slight commendation to unqualified praise of its beneficial effect. Fully 90 per cent of the letters from commanding officers of vessels contained statements such as, "effect good," "most excellent in every respect," "absence over leave reduced to practically nothing," "most excellent; will go a long way toward stopping absence over leave," "effect very desirable," "excellent," and "has done much good." It is fair to state that the younger commanding officers appear most enthusiastic, while from the captains of battleships three adverse and three noncommittal replies were received.

The general improvement in discipline, which, in a measure, is due to the operation of General Order No. 110, will be seen from the following table. The term "premature discharge" includes men whose connection with the service was severed under such circumstances as to preclude their being allowed to reenlist; i. e., such as "ordinary discharges, not recommended for reenlistment," discharged as undesirable, for inaptitude, or by medical survey as unfit for the service, etc.

	Navy.		Marines.	
	1916	1915	1916	1915
Discharged in honorable status at expiration of enlistment	10,284	8,714	1,860	1,582
Discharged as undesirable for inaptitude or with ordinary discharge not recommended for reenlistment	756	1,075	161	339
Discharged with dishonorable discharge	1,000	1,033	187	192
Discharged with bad conduct discharge	2,296	2,728	487	762
Total number prematurely discharged	4,052	4,836	835	1,293
Excess of premature discharges occurring in 1915 over 1916	.....	784	.....	458
Total deserters for fiscal year	1,681	1,730	659	891
Total number of men handled during fiscal year	72,885	71,511	13,887	13,953

From the foregoing it will be observed that though 1,308 more men were handled during 1916 than during the previous year, there has been a decrease of a total of 1,251 "premature discharges," viz,

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784 Navy and 458 Marines, this decrease in spite of the abnormal demand for labor and corresponding inducements for enlisted men to seek lucrative employment in civil life. There has been a decrease of 1.4 per cent of desertion in the Marine Corps and 0.46 per cent in the Navy, and an increase of 1,848 (or 18 per cent) of men discharged in an honorable status as compared with the previous year.

The records show that in April, 1914, shortly before General Order 110 became effective, there were 1,835 naval prisoners of all classes; at the present date there are only 620, making a reduction of 1,215 in the number of naval prisoners.

Since April, 1914, the following penal institutions have been closed: Naval prison, navy yard, Boston, Mass.; U. S. S. *Philadelphia*, and U. S. S. *Topeka*, which have been wholly abandoned as prison ships and returned to other duty in the Navy; and the disciplinary barracks, Port Royal, S. C., and Puget Sound, Wash.

The only naval prisons remaining in operation are: The naval prison, Portsmouth, N. H., the naval prison, Mare Island, Cal., and the U. S. S. *Southery*, as a detention ship at Portsmouth, N. H.; the naval prison, Cavite, P. I., being used as a clearing house for prisoners tried on the Asiatic station. The *Southery* is used as a detention barracks for about 60 offenders whose sentences have been mitigated to detention and as a segregation camp for prisoners before they are transferred to the prison ashore; also a limited number of prisoners are kept on board for the performance of certain work under the direction of the commanding officer. However, the use of the *Southery* could and should be dispensed with in so far as her services are required for this work, such use of her being made for this purpose solely because she is also employed as a receiving ship at the navy yard, Portsmouth, N. H. If the department should deem it advisable to dispense with the services of the *Southery* as the receiving ship, I deem it highly desirable and advisable and do so recommend that the prisoners now confined on her be transferred to the prison ashore, wherein there are ample facilities for their accommodation at a reduced cost both in actual expenses and in the number of guards required; the detentioners at present under instruction and observation could be either restored to duty unconditionally on probation or discharged in accordance with the terms of their sentences as their records, etc., appear to warrant. Henceforth naval prisoners who appear to be desirous of rehabilitating themselves and who have completed a portion of their sentence in the naval prisons could either be restored to duty unconditionally or on probation subject to the provisions of General Order 110.

The abolishment of the detention system on the *Southery* would result in the saving of several thousand dollars annually, and it is believed that the same results would obtain from the handling of the present population of the *Southery* as outlined above.

In addition to the above, a small number of naval prisoners are confined at the navy yards at Norfolk, Philadelphia, and Puget Sound, and at the marine recruit depot at Port Royal, S. C. These are not naval prisons, but a limited number of prisoners are kept at these stations and cared for and guarded by the regular marine guard for the benefit of the police duty that they perform.

In regard to the saving in expense: The prison account for the fiscal year 1913 showed an expenditure of $1,190,514 39; in 1914,

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$822,923.03; in 1915, $643,461.34; and the account for the fiscal year 1916, while not completed, is sufficiently so to show that the cost of prisons under the present system of discipline is at the present time at the rate of approximately $350,000 per year, and this could immediately be further reduced to $300,000 per year if the detention system on the *Southery* be abolished and that vessel be returned to such general service as she may be best fitted to perform. (The actual cost for the fiscal year 1916 will be in excess of this because during a portion of that year it was necessary to maintain the disciplinary barracks at Port Royal and the U. S. S. *Philadelphia*, the combined annual expense of which was approximately $250,000.) A monetary saving of $850,000 per year is thus shown for the system, besides certain other expenses which are saved but which do not appear, such as transportation for prisoners and guards between stations, unusual medical treatment, etc. The marine guard at prisons has been reduced from 23 officers and 849 men in 1913, to 7 officers and 326 men in 1916.

If the above-mentioned reductions in prisons and expenses had been effected at a sacrifice to the discipline of the service I would most certainly feel that they were not of value. However, in view of the almost unanimous verdict of the service, as well as the data in regard to desertions, discharges, etc., as set forth above, that the system of probation under suspended sentence has resulted in improving discipline, I point with pride to the above enumerated results accomplished by this reform.

RECENT LEGISLATION AFFECTING ADMINISTRATION OF JUSTICE.

The act approved August 29, 1916, contained several items to which attention is specially invited. It had for some years been apparent that the Navy as an organization had outgrown the original "Articles for the government of the Navy," especially with reference to the officers who were authorized to order and approve courts-martial, courts of inquiry, etc. The old Articles contained no adequate authority for officers in command on shore to discipline the men under their command and were otherwise defective. In the act approved August 29, 1916, Congress enacted provisions which are more elastic and efficient in these particulars. In exceptional cases the Secretary of the Navy is empowered to authorize commanding officers to order courts which they would not otherwise be authorized to convene. Marines embarked on a naval vessel as a separate organization bear the same relation to the commanding officer under the new law as they bore under former laws to the commandant of a naval station. Officers authorized by law to convene general courts-martial are under the new laws authorized to convene courts of inquiry, and action upon summary courts-martial may now be taken by the convening officer's immediate senior in command present instead of by the senior officer present. Finally all officers of the Navy and Marine Corps who are authorized to order either general or summary courts-martial may under the new laws order deck courts upon enlisted men under their command and are given the same authority to inflict minor punishments as is conferred by the Articles for the government of the Navy upon the commander of a naval vessel. During the recent session of Congress there was also enacted

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a law under which definite provision is made for the trial of marines and personnel of the Medical Department of the Navy for offenses committed while detached for service with the Army, thereby remedying the lack of jurisdiction mentioned in my last report which was discovered in the case of a marine after his return to the Navy charged with an offense committed while under Army jurisdiction.

The naval appropriation act also contains legislation which should have a material bearing upon desertion. The following is quoted:

Provided, That any person who may hereafter enlist in the Navy for the first time shall, in time of peace, if he so elects, receive discharge therefrom without cost to himself during the month of June or December, respectively, following the completion of one year's service at sea. An honorable discharge may be granted under this provision; but when so granted shall not entitle the holder, in case of reenlistment, to the benefits of an honorable discharge granted upon completion of an enlistment: *And provided further*, That, at the time, he is not under charges, or undergoing punishment, or in debt to the Government: * * *

In view of this provision, there would seem to be absolutely no excuse in the future for any man to desert, as it practically authorizes any man to demand his discharge in any month of June or December, following one year's service, if he is not under charges or in debt to the Government.

Another feature in this act which renders it easier for any enlisted man to obtain his release from service is the following:

The Secretary of the Navy is hereby authorized to grant furlough without pay to enlisted men for a period covering the unexpired portion of their enlistment: *Provided*, That such furlough be granted under the same conditions and in lieu of discharge by purchase or by special order of the department. * * *

Under this paragraph an enlisted man may obtain a furlough without pay for the unexpired portion of his enlistment under the same conditions which under the former laws authorized his discharge by purchase. It would seem that these two provisions of the bill should put an end to desertion by men who are not mental defectives.

DEFECTIVES.

Though the examination of prisoners is continued with much the same results as heretofore noted, no test has been developed of sufficient accuracy to be of very great practical use in recruiting in the direction of keeping out of the Navy those defectives who eventually find their way to prison.

CLEMENCY LETTERS.

As stated in previous reports from 1 to 10 letters imploring clemency are received in the case of practically every man who is court-martialed for offenses of a serious nature. As stereotyped replies to such requests are not desirable, a heavy burden of correspondence results. Many of these letters base the plea for clemency on the ground of alleged destitution of the prisoner's dependents. All such cases are thoroughly investigated with the assistance of charitable organizations in the various cities, and in deserving cases, a certain amount of relief, when practicable, is extended to dependents of prisoners who would otherwise become a public charge. In numerous cases where the prisoner is not in a pay status and it would be prejudicial to discipline to liberate him without punishment, it is necessary to permit his dependents to endure the inconvenience which his misconduct has caused them.

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PRISON LABOR.

At various times during past years prisoners have been employed in useful labor which would be remunerative to the Government. During my incumbency in office I have made many recommendations in favor of this practice, but with experience I now realize the uselessness of such recommendations owing to the opposition developed to the employment of Federal prisoners in competition with ordinary labor. For that reason the field for employing prisoners is exceedingly limited. During the past year a joint resolution was adopted by Congress providing for a special joint commission of the Senate and House of Representatives to investigate the employment of Federal prisoners in industrial occupations for the benefit of the Government of the United States. As there is no possible doubt that the employment of prisoners for practical work which would at the same time teach them a trade and be remunerative to the Government would be mutually beneficial to them and to the Government, it is hoped that through the means of this commission we may in the future be enabled to employ naval prisoners upon useful labor. Work such as is done in rigging lofts, manufacturing coal bags, hammocks, puddings, mats, pendants, etc., could readily be done at naval prisons and the men thus taught a useful and remunerative trade while confined. A stockade is now well advanced in construction at the Portsmouth Prison which will permit of such employment of prisoners without guard, and will also afford them needed recreation. This very extensive work has been done exclusively by prison labor.

REDUCTION IN TIME OF TRIALS.

A special effort has been made to reduce the period of time elapsing between the first report against an accused and the final completion of his trial and commencement of his confinement in cases of conviction and sentence involving imprisonment. The following table shows the marked improvement made in this feature:

Trial of general court-martial cases at the navy yard, New York.

	Number of cases cited.	Average number of days elapsed from—			
		Date confined to receipt of charges and specifications.	Receipt of specification to trial.	Trial to final disposition.	Confinement to final disposition.
July	35	14	4	10	28
August	24	12	7	12	31
September	19	15	8	10	33
October	26	13	8	10	31
November	19	11	11	12	34
December	27	5	5	11	21
January	30	6	4	10	20
February	27	5	3	6	14
March	17	4	2	6	12
April	15	5	2	6	13
May	23	5	3	9	17
June	30	6	2	6	14

	Days.
Average time during first 5 months from date confined to final disposition	31½
Average time during last 5 months from date confined to final disposition	14
Reduction in average time (55 per cent)	17½

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Except in special instances, all cases are reviewed, approved, and promulgated upon date of receipt in the department, cases tried on the west coast being promulgated by radio. The reduction in the period of confinement preceding trial has been due in a great measure to the fact that the return of deserters and stragglers to naval jurisdiction is now reported by radio or wire instead of by letter, as was previously the practice. In order to accomplish the final improvement, as shown in the last column above, it was necessary to analyze delays as given in the first three columns and reduce each separately. Lack of absolute uniformity in all cases must necessarily exist due to greater length of time required for the preparation of cases received from the west coast, occasional unusual delays due to an accused not being ready for trial, and in exceptional cases to a lengthy case causing congestion of the docket. Aside from the benefits from a humanitarian point of view in so greatly reducing the average length of time prior to trial and imprisonment, the monetary saving to the Government during the course of a year is considerable.

CLASSES OF PRISONERS.

At the present time naval prisoners are divided into four general classes, as follows:

I. *Criminals.*—These are men whose offenses involve moral turpitude. Such men are by special arrangement confined in the State prisons of New Hampshire, Connecticut, Pennsylvania, and California.

II. *Naval prisoners.*—These are men convicted of purely military offenses; they wear the prison garb and perform hard labor, but if their conduct and attention to duty justify clemency, an opportunity is afforded the deserving—subject to certain conditions—to secure mitigation and obtain their restoration to duty through the detention system.

III. *Detentioners.*—These are offenders who are less than 21 years old, or who have worked through a naval prison and whose sentences have been mitigated to detention as indicated in the preceding paragraph. These men wear the uniform of their rating in the service, and in lieu of hard labor undergo drills and exercises and receive instruction to better qualify them for their continuance in the service if restored to duty. The work required of them is only such as might be required of any enlisted man in good standing.

IV. *Probationers under suspended sentence.*—These are men convicted by general or summary court-martial of military offenses and sentenced to discharge from the service, the execution of which sentence has been suspended for a probationary period. Instead of such men being sent to disciplinary ships or barracks as heretofore, they are restored to duty in the service at large for a limited length of time. One-half of their pay is withheld each month, but is ultimately paid them if their conduct during the remainder of their enlistment entitles them to an honorable discharge. These men while on probation are in all respects, except for the withholding of half pay, in the same status as other enlisted men.

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II.

OFFICERS' RECORDS.

Under this heading may be grouped the examination of all officers of the Navy and Marine Corps, preliminary to promotion and retirement, the examination of candidates for appointment as commissioned officers, the convening and dissolving of examining and retiring boards, the reviewing and filing of records of proceedings, and the conducting of all correspondence relating thereto.

In this connection, there has recently been assigned to this office the above-mentioned duties in regard to the examination of candidates for appointment as warrant officers as well as commissioned officers. Inasmuch as the act of August 29, 1916, established a National Naval Volunteer force, whose members may be called forth into the service of the United States in time of an emergency without further examination, it is recommended that the examinations for their admission to commissioned and warrant grades be handled in the same manner. It is believed that, by thus having the examination preliminary to appointment of all officers of the various branches and corps of the regular establishment, militia, reserve force, and volunteers under the supervision of one office, greater uniformity and efficiency will obtain and the department can be assured that the legal requirements are complied with.

Since 1912, this branch of the work has nearly doubled, and, due to the operation of recent legislation which provided for large increases in personnel, the creation of a Naval Flying Corps, officers for engineering duty only, reorganization of the Naval Dental Corps, and the Navy Dental Reserve Corps, Naval Reserve Force, and Marine Corps Reserve, the volume of this branch of the work will be constantly increasing, so much so that despite the recent additional force assigned to this branch of the work, a further increase in personnel and more space for the filing of officers' records where they will be readily available for reference will be necessary in a very short time. This additional work is all new but is necessary to efficient preparation and should therefore be welcomed as a direct evidence of progress, rather than shunned as unnecessary paper work.

The following tables show the operations of the office under this head during the fiscal year:

EXAMINING BOARDS.

Officers of the Navy:	
Records revised	339
Failed professionally	9
Failed professionally and morally	1
Failed physically	24
Action on cases suspended	10
Failed morally	2
Qualified for promotion	293
Paymaster's clerks and former paymaster's clerks examined for appointment as acting pay clerks, pay clerks, and chief pay clerks, under the act of March 3, 1915:	
Records revised	74
Failed professionally	2
Failed physically	6
Failed morally	2
Qualified for appointment	64
Officers of the Marine Corps:	
Records revised	56
Failed physically	3
Action on cases suspended	6
Qualified for promotion	47

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RETIRING BOARDS.

Officers of the Navy:	
Records revised	62
Retired	44
Fit for duty	3
Incapacitated, but continued on active duty	3
Incapacitated, sick leave, and reexamination	9
Incapacitated, not incident to service	3
Officers of the Marine Corps:	
Records revised	4
Retired	2
Incapacitated, sick leave, and reexamination	2

EXAMINING BOARDS OF CANDIDATES FOR ADMISSION TO THE NAVY AND MARINE CORPS AS OFFICERS.

Line:	
Records revised	8
Failed professionally	1
Qualified for appointment	7
Civil Engineer Corps:	
Records revised	2
Qualified (ensigns examined for appointment as assistant civil engineers)	2
Construction Corps:	
Records revised	7
Qualified (ensigns examined for appointment as assistant naval constructors)	7
Medical Corps:	
Records revised	20
Failed professionally	6
Failed physically	1
Qualified for appointment	13
Pay Corps:	
Records revised	119
Failed professionally	64
Failed physically	23
Failed morally	1
Qualified for appointment	31
Dental Corps:	
Records revised	28
Failed professionally	2
Failed physically	7
Withdrew	2
Qualified for appointment	17
Chaplains:	
Records revised	16
Failed physically	6
Qualified for appointment	10
Medical Reserve Corps:	
Records revised	102
Failed professionally	33
Failed physically	34
Qualified for appointment	35

RECORDS REVISED.

Examinations for promotion, Navy and Marine Corps	459
Examinations for retirement, Navy and Marine Corps	66
Examinations for admission, Navy and Marine Corps	302
Grand total	827

III.

LEGISLATION.

The Navy Regulations require this office to conduct all correspondence for the Department with both Houses of Congress and with the President concerning proposed legislation relating to the personnel of the Navy and Marine Corps and to draft all proposed statutes on this subject.

The work under this head during the past fiscal year was more than double that of the previous fiscal year and, as anticipated in my last annual report, much difficulty was encountered in handling it expeditiously, this being accomplished only by daily work long after regular office hours.

In view of the fact that the interpretation of statutes relating to the personnel of the Navy and Marine Corps is part of the work of this office, the regulation assigning the drafting of legislation concern-

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ing such matters to this office is not only logical, but essential to efficiency, as otherwise confusion and unsatisfactory results as well as much extra work are to be expected.

The drafting of legislation in apt language so that intent and result may harmonize is a special art acquired only by long experience in drafting and interpreting laws. In order that the draft may accurately express the desired meaning and, at the same time, not repeal or undesirably affect existing law, it is essential that the draftsman possess a thorough knowledge of all existing statutes which might be affected by the proposed law, an intimate knowledge of the subject matter with which he is dealing, and be thoroughly familiar with the accepted canons of statutory interpretation. Otherwise the result will most probably be incomplete and inadequate legislation, not infrequently involving a conflict with or repeal of important laws which it was not desired to modify. The necessity for a knowledge of the fundamental principles of the rules of interpretation and construction of statutes on the part of one drafting a bill needs no argument; if the construction which the draftsman of a proposed law places upon it can not be sustained by the established canons of statutory interpretation, it is manifest that his bill, if enacted into law, will not only not accomplish the object which he intended, but may even accomplish something which is actually very undesirable. It is not understood by many who irresponsibly draft proposed laws, that statutes are interpreted not by what the draftsman intended to say, but by what the words used do actually say as determined by the ordinary canons of statutory interpretation.

One who has not had experience in the interpretation of statutes can hardly realize the large amount of study and consideration required to draft properly even a comparatively simple bill, but one who has the duty of interpreting statutes fully appreciates the great value of skillful drafting and is willing and even anxious to devote many hours on a proposed bill prior to its enactment in an effort to make it clearly convey the desired meaning and nothing more—especially is this so if, as in my case, he knows that he will later be called upon officially to interpret it. It is for this excellent reason that the regulations assign to this office the duty of drafting statutes with reference to the naval personnel. Attention is invited to this point because there appears to be a feeling extant that anyone can draft a statute, and the attempts of some to do so have been responsible for uncertainty of meaning and difficulties of administering certain legislation which has been enacted for the benefit of the Navy. For example, it has sometimes happened that when officers are before the naval committees of Congress during hearings, they have been asked to submit to such committees drafts of legislation covering the features they have advocated. In such cases, the drafts prepared by officers who have no special training either in drafting or interpreting statutes should invariably be referred to this office for editing prior to their submission to the naval committees. The same applies to bills which are recommended by the department at the instance of some individual officer or bureau. There is a growing tendency in such cases for various inexperienced persons to frame bills upon subjects in which they are interested and draft for the Secretary's signature the letters forwarding same to the

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naval committees. By these means the Navy is subjected to ambiguity and confusion in its laws and perhaps deprived of benefits which Congress intended to confer, but which the draftsman of the statute was unable to put into words, while at the same time believing and representing to the committees that the measure he submitted would accomplish the desired result.

Even the most skillful draftsman of legislation can not guarantee that his product will be free from doubtful questions, for written language is, at best, only an imperfect medium for the expression of ideas. As the Supreme Court has stated, there have not been wanting "illustrious instances of great minds which, after they had, as legislators or commentators, reposed upon a short and hasty opinion, have deliberately withdrawn from their first impressions when they came upon the judgment seat to reexamine the statute or law in its full bearings." It follows, therefore, that it is necessary, not merely as a compliance with regulations, but for efficiency itself, that the drafting of statutes relating to the personnel and correspondence with reference thereto be conducted by this office. It is therefore recommended that the department make it a rigid rule to withhold its sanction and approval from proposed legislation relating to the personnel until the draft thereof has been submitted to this office to be placed in proper form and phraseology and to determine its effect upon existing law.

The following tables show the operations of the office under this heading and the status of various measures relating to the Navy:

Senate and House bills, joint resolutions, and proposed amendments referred to the department for recommendation.

Senate bills, etc.:	
Private—	
Favorable action recommended	3
Unfavorable action recommended	43
Answered, no recommendation made	3
Total	49
Public—	
Favorable action recommended	3
Favorable action recommended, with amendment	6
Unfavorable action recommended	6
Answered, no recommendation made	5
Total	20
Total Senate bills, etc., referred	69
House bills, etc.:	
Private—	
Favorable action recommended	1
Favorable action recommended, with amendment	1
Unfavorable action recommended	26
Answered, no recommendation made	3
Total	31
Public—	
Favorable action recommended	2
Favorable action recommended, with amendment	1
Unfavorable action recommended	2
Answered, no recommendation made	3
Total	8
Total House bills, etc., referred	39
Statutes, etc., drafted:	
Public bills or amendments thereto drafted and submitted to Congress	39

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IV.

LEGAL QUESTIONS, OPINIONS, AND DECISIONS.

The strictly legal work of this office, as stated in my last annual report, embraces a very wide field, including every question of law which arises with reference to the personnel of the Navy and Marine Corps, both in connection with internal administration and relation to the civil authorities. This branch of the work necessarily increases with the growth of the Navy and Marine Corps, and the establishment of reserve forces for use in time of war. As the various questions embraced by this branch of the work intimately concern the operations of the service in every field and frequently cause delay in official action pending the interpretation of the law by this office, every effort is made to prepare the necessary legal opinion in each case with the greatest possible expedition consistent with such complete thoroughness as the importance of the question presented and its value as a precedent for future guidance demand.

In this connection it is believed to be of no little significance that in only one case handled by this office during the year was it considered necessary by the department to request an opinion of the Attorney General upon the question involved, and in that case the Attorney General's opinion when rendered fully sustained the opinion previously expressed by this office.

It is perhaps needless to remark that this branch of the work is in a special manner greatly aided by the legal publications which have recently been completed or are in course of preparation by this office. The ready reference thus afforded to previous decisions facilitates to a marked degree the expeditious and accurate handling of current questions constantly presented for decision. Particularly has it been found that the work of compiling the "Laws Relating to the Navy, Annotated," which is being done by the senior law clerk of this office gives him a grasp upon the statutes and decisions relating to the Navy which makes it possible for him to prepare for my action in the briefest time cases which would otherwise require extensive study and research. The advantage of this, not only to the office but to the service generally, is apparent.

V.

INTERNATIONAL LAW.

The beginning of the present European war gave rise to numerous international questions of vital interest to the Government, particularly to the Navy, and accentuated the fact that in the organization of the Navy Department the definite assignment of questions relating to international law had not been provided for. Realizing that such work would naturally fall to this office, last year I required seven officers on duty herein, including myself, to take a special course in international law at a local university. in connection with the regular law course or as post graduate work.

In view of the general character of the work in this office, its library facilities, and the above preparation, numerous questions of international law arising out of the present war were referred to this office prior to the establishment of the "Joint Neutrality Board." The research and study incident to answering these questions dis-

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closed the fact that, despite the marked foresight that had been displayed by European countries in their preparations for war, many of them had neglected to prepare for matters involving international relations, both neutral and belligerent; with certain nations these were apparently the only matters that had been neglected. Aside from the broad subject of the education of the personnel in the laws of war and international obligations, it appeared that advance preparations to receive and properly care for prisoners of war had been generally neglected. From the very beginning of the conflict, serious complaints and protests were made by the several belligerents in regard to the unnecessary hardship and suffering among prisoners of war; this was undoubtedly due to the large numbers of prisoners captured early in the war and to the inadequate advance preparation for their detention. Charges and countercharges were made of cruel and brutal treatment and measures of retaliation were resorted to on both sides.

Finding, in the course of the above-mentioned study, that our own Navy Regulations were absolutely silent as to the responsibility for detaining prisoners of war, and realizing the seriousness of the subject and the amount of time necessary thoroughly to prepare regulations and instructions governing their treatment, as well as the considerable preparation in a material way necessary to provide for them, I suggested, in November last, that in order to prevent a situation in this country in the event of war similar to that which had been reported abroad, the subject of international law, including the treatment of prisoners of war, be definitely assigned by regulation. I pointed out the extensive nature of the work involved in the preparation of instructions and recommended that some plan be worked out in detail immediately and kept ready for use, so that in the event of war prison camps could be promptly established without confusion.

At the same time I called attention to the fact that no regulations had been issued by the department governing the treatment of belligerent vessels and individuals interned in this country; that inasmuch as both of these subjects involved many delicate points of international law, it seemed highly desirable that this subject also should be specifically assigned to some office in the department in order that proper rules and regulations could be formulated for the information and guidance of those concerned. The department assigned all of the above-mentioned duties to the Office of the Judge Advocate General and directed that appropriate regulations be drafted to cover these important subjects.

Correspondence was immediately begun with the proper officials, both at home and abroad, with a view to ascertaining the custom in various countries in these matters, and with the information thus obtained regulations were framed in conformity with the provisions of The Hague conventions, the accepted principles of international law, and the treaty obligations of the United States. These regulations cover the subjects of prisoners of war and of internment. The study of questions of international law was underaken systematically and a library and card index reference file begun.

REGULATIONS FOR THE GOVERNMENT OF PRISONERS OF WAR.

It was intended to make these regulations so complete in themselves that an officer on receiving telegraphic orders to establish a prison

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camp could find in them all the necessary information and authority to carry out his orders. The administrative part of these regulations is now complete and ready for issue. The general instructions for establishing the camps are also ready, but inasmuch as the amplification of these instructions depends upon the permanency of the establishments, certain details are being withheld pending the result of conferences between representatives of this office and the Army General Staff to decide whether or not prisoners captured by the Navy will ultimately be transferred to Army prison camps. Even if they should be, I believe that, in the light of our latest war experience, when the crews of certain prizes, known at the time to be members of the enemy naval reserve, were released and returned to their own country for lack of proper facilities for detaining them, the Navy should be prepared to erect at least temporary establishments to accommodate all prisoners captured by its forces until such time as the War Department may be prepared to receive them. Arrangements to this effect have been completed pending a decision of the War Department in the premises.

REGULATIONS GOVERNING INTERNMENT.

Owing to the fact that the practice of interning belligerent vessels in neutral territory is of very recent origin, little information pertinent thereto could be obtained from abroad; as far as could be learned, no foreign country now has regulations to cover this subject. It was therefore necessary to enter into an exhaustive study of this matter. After much study and correspondence a treatise on this subject was prepared and submitted to the department, together with regulations framed thereon. These regulations were referred by the Chief of Naval Operations to the General Board for comment, which board returned same with the statement that they seemed to cover all phases and situations of the subject, and recommended that, with certain minor changes, they be approved and promulgated. The department has approved these regulations, which are now in press and will soon be issued.

NAVAL JURISDICTION OVER BELLIGERENT VESSELS IN UNITED STATES WATERS.

During the study of the subject of internment I became firmly of opinion that jurisdiction over belligerent vessels of war visiting waters under the jurisdiction of the United States properly belonged to the Navy Department, rather than to the Treasury Department, during the entire time of such visits, and recommendation was made accordingly. This question was referred to the Treasury Department, which department heartily approved of the procedure recommended. Under agreement with the Treasury Department the Navy Department now has exclusive charge of visiting belligerent vessels of war and of controlling their movements and activities while in the territorial waters of the United States, as well as supervision over them, their officers, and crews in case of internment. Instructions for the information and guidance of officers on this duty, framed in this office, have been approved by the department and are now being prepared for issue.

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INTERNATIONAL QUESTIONS ARISING OUT OF THE PRESENT WAR.

Besides the work outlined above, many questions arising out of the present war, such as interference with United States mail, attempts by belligerents to board naval auxiliaries, the exercise of visit and search in the United States territorial waters, violations of radio neutrality, etc., have been referred to this office for comment and advice. The study of international law is now assigned by regulation to the Office of the Judge Advocate General, and the facilities of the office are constantly being improved with a view to giving the department the best information available on any question of international law that may arise.

In order that the knowledge and study of the officer assigned to this work may not be lost to the department by his detachment on the outbreak of war, I recently adopted, and recommend that it be continued, a policy that a retired officer be regularly assigned to the international law desk in this office, since he will most probably not be disturbed at that critical time when the department needs his knowledge and experience most. The establishment in the department of this desk devoted to the exclusive study of international law is believed to be of far-reaching importance, not only in affording it an expert adviser on such matters, but in aiding the development of international law along lines most favorable from a naval point of view. Its occupant should be of such experience that he can represent the Navy and the United States, if so desired, as a delegate at international conventions and conferences and speak with authority concerning naval matters.

The work already accomplished in regard to the subjects of internment and prisoners of war is of the highest importance and may be taken as indicative of the future usefulness of this desk.

VI.

MISCELLANEOUS.

LEGAL PUBLICATIONS.

Work upon the compilation of the various publications mentioned in my last report is rapidly approaching completion. The state of completion of each is shown in the following paragraphs:

(*a*) "Laws Relating to the Navy, Annotated": Work upon this most valuable compilation has been continued uninterruptedly by the senior law clerk of this office outside of office hours, pursuant to the Senate's resolution by which it was authorized. It had been hoped that it would be published by this date, but its completion has been delayed due to very many changes in laws which it was desirable to incorporate therein, and particularly to the fact that the scope of the work has been greatly extended beyond the original plans. The additional time thus required for the completion of the book will be more than justified by its increased value when finished, which can hardly be overestimated. Something more than 600 pages have been completed and are now in type or ready for the printer. It is fully expected that this very valuable work will be completed and published during the coming year.

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(*b*) "Naval Courts and Boards:" The completion of this work, which was in galley proof in the early part of this year, has been purposely delayed in order to incorporate the various new enactments relating to discipline which I was confident would be enacted at the recent session of Congress. The work is now being completed and should be published to the service coincidently with or soon after this report.

(*c*) "Index-Digest": An Index-Digest for 1915 was published similar to that of 1914, and about 200 copies of the complete files of orders were bound and issued to the various ships, commanders in chief, permanent courts, marine barracks, etc. These index-digests have proved invaluable to naval courts, in affording them a ready reference to precedents upon difficult points of naval law, and have greatly reduced the number of errors in procedure and consequent complications in action upon court-martial records.

(*d*) "Naval Digest": The Naval Digest, which has been in the course of preparation for two years, covering selected opinions of this office, decisions of the department, and remarks upon court-martial records extending back to 1879, is now practically complete and will be issued to the service coincidently with the publication of this report. This digest will furnish in abridged form a comprehensive treatise on naval law, precedents, and decisions. This and the court-martial orders and annual index-digests have occupied the almost exclusive attention of one officer during the past two years. I regard the Naval Digest in its bearing upon naval law and procedure as one of the most valuable products of my incumbency.

(*e*) Revision of Prison Manual: Owing to the extensive changes in the system of naval penology, hereinbefore explained, a complete revision of the Prison Manual to make it conform to present practice and to embody all existing orders, etc., relating thereto, has recently been completed and issued to the service.

(*f*) General Order 110 and Article I–4893: As elsewhere mentioned, General Order 110 was revised by a board of officers after careful consideration of the recommendations received in reply to the Secretary's confidential letter to commanding officers requesting comment and criticism of General Order 110. As hereinbefore stated, this revision has recently been issued to the service. A similar revision of Article I–4893 of the Naval Instructions, bearing upon the same subject, has also been made for the sake of clarification and amplification of the former article.

CIVIL OFFENDERS.

General Order No. 121 of September 17, 1914, which prescribes the procedure for the delivery of persons in the naval service to the civil authorities, and which was discussed at some length in my last annual report, has, under further test, been found entirely satisfactory.

Our methods and requirements have met with general approval and cooperation on the part of the civil authorities. During the past year it has been particularly noted that the various civil authorities, as well as commanding officers and the service generally, have become more and more familiar with requirements of the general order mentioned, and a subject which heretofore caused much confusion and embarrassment both to the Navy Department and the civil authorities, is now handled with promptness and uniformity. Experience has demonstrated that whereas real offenders against civil laws are

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surrendered promptly, our requirements antecedent to surrender are such as to safeguard enlisted men against malicious and unfounded charges which unscrupulous persons in civil life not infrequently prefer against them.

During the past fiscal year the department authorized the delivery of persons in the naval service to the various civil authorities, as follows:

California	16
New York	11
Massachusetts	9
District of Columbia	8
Maryland	3
Florida, Illinois, New Jersey, New Hampshire, Tennessee, and Washington....each two	12
Kentucky, Pennsylvania, Rhode Island, Vermont, and Virginia....each one	5
Civil courts of United States	8
Civil courts of Philippine Islands	6
Hawaii	1
Total	79

DETAILS CONCERNING OFFICE OF THE JUDGE ADVOCATE GENERAL.

During the past year, in view of the fact that the duties of the Judge Advocate General are largely prescribed by statute and that no person was authorized by statute to perform those duties in his absence, Congress enacted a law providing that "an officer of the line of the Navy or Marine Corps may be detailed as assistant to the Judge Advocate General of the Navy," who shall perform the duties of the Judge Advocate General in case of the latter's death, resignation, absence, or sickness, unless otherwise directed by the President as provided by section 179 of the Revised Statutes.

During the year officers on duty not graduates in law continued the post-graduate course out of office hours at one of the universities of the city. One officer on duty took the examinations for the District of Columbia bar and was admitted thereto, and another officer graduated and received his degree in law, but for reasons beyond his control has not yet taken the bar examinations.

Owing to the increases provided for the Navy, and the fact that the work of this office already overtaxed its personnel, it became necessary during the last session of Congress to request an increase of office force. Though the amount which I requested, and which was the minimum necessary, was not entirely allowed, the office force was increased by a chief law clerk at $2,000, and a law clerk at $1,600, and one messenger. The work of this office is assuming constantly increasing proportions, and legal matters of extreme importance are constantly being passed upon. A chief law clerk at $3,000 was requested, and such a position in this office is considered urgently necessary. The importance of the work performed by the senior law clerk in this office is perhaps scarcely appreciated. He personally handles or advises upon every important legal question concerning the naval personnel, and all suits in the Court of Claims involving the personnel of the Navy or Marine Corps, in all of which suits this office makes it a point to cooperate to the greatest possible degree with the Department of Justice, which is charged with conducting the Government's defense in court. The salary of the senior law clerk

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in this office at the present time, $2,200 per annum, is not sufficient to retain, or, in case of a vacancy, obtain, the class of man who should occupy that position.

The statistics of work accomplished during the past year do not, of course, show the increase of work which has already begun to fall upon this office in consequence of the recent legislation increasing the personnel. With this legislation an enormous increase will be felt during the present fiscal year. For instance, the tables show that general and summary courts-martial and deck courts reviewed constitute almost a fixed percentage of the men in the naval service; general courts-martial approximately 2 per cent, summary courts-martial approximately 12 per cent, and deck courts approximately 9 per cent. Therefore the authorized increase of 40 per cent in the enlisted force will increase the work of this division by approximately the same percentage.

The new legislation providing the Naval Reserve Force, the National Naval Volunteers, and further greatly increasing the authorized number of officers in the naval service, will lead, it is believed, to more than doubling the activities of the division handling officers' records. Similarly the very large amount of legislation enacted will for a long time throw an enormous increase of work upon this office in the interpretation of statutes. It is therefore certain that additional assistance will be required for the proper and expeditious handling of the work under the cognizance of this office.

During the past year, through the courtesy of the Paymaster General of the Navy, the Navy Mutual Aid Association, which had for many years occupied quarters in an anteroom to this office, was moved to quarters assigned the Bureau of Supplies and Accounts in the Navy Annex, thus relieving to an appreciable extent the overcrowded condition of this office. However, the present quarters are still congested, and an urgent request has been laid before the commission provided by Congress to redistribute the rooms in this building, to assign Rooms 104 and 106 to this office. This would extend the quarters to the middle door on the south side of the building and would be reasonably adequate for some years to come.

For several years the office has been endeavoring to install modern steel equipment for filing the records the custody of which is by law placed under the Judge Advocate General. These records are of great historical value, as well as of the most practical importance in the work of this office by reason of the mass of precedents and legal decisions which they contain. These records consist principally of courts of inquiry and trials by general courts-martial extending back to the creation of the Navy Department, and the examinations of officers of the Navy for appointment, promotion, and retirement, together with the complete record of every officer of the Navy and Marine Corps up to the date of his last promotion, retirement, or death.

In former years these valuable records were filed in open wooden cases and shelving, exposed to an accumulation of dust, and to the dangers of mutilation, theft, or destruction. During the administration of my predecessor work was begun to install modern filing equipment, and this has continued each year, until now a complete system of steel cases has been installed sufficient to contain all of these records now in the office and to allow a limited amount of space for expansion.

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DATA RELATING TO THE ADMINISTRATION OF JUSTICE.

There are given below tables showing in detail the operations of office during the fiscal year in the various branches of work relating to the administration of justice:

GENERAL COURTS-MARTIAL.

Charges and specifications drawn up in this office during the fiscal year.

	Navy.	Marine Corps.	Total.
Officers	15	1	16
Enlisted men	1,081	162	1,243
Total trials ordered by the Secretary of the Navy	1,096	163	1,259
Charges withdrawn:			
On account of physical disability			3
Prisoners escaped			4
By order of department			4
Total trials not completed			11
Cases tried by order of the Secretary of the Navy			1,248
Corresponding trials fiscal year 1915			1,471
Corresponding trials fiscal year 1914			1,457

Trials held at each naval station.

Portsmouth, N. H	24
Boston, Mass	117
New York, N. Y	400
Philadelphia, Pa	227
Norfolk, Va	163
Mare Island, Cal	156
Puget Sound, Wash	42
Charleston, S. C	44
Special	75
Total	1,248

Trials by order of officers of the Navy authorized to convene general courts-martial.

	Navy.	Marine Corps.	Total.
Officers	10	1	11
Enlisted men	169	119	288
Total	179	120	299
Corresponding trials fiscal year 1915	159	63	222
Corresponding trials fiscal year 1914	218	79	297

Total trials.

	Navy.	Marine Corps.	Total.
Officers:			
By order of Secretary of the Navy	15	1	16
By order of officers of the Navy	10	1	11
Total	25	2	27
Enlisted men:			
By order of Secretary of the Navy	1,070	162	1,232
By order of officers of the Navy	169	119	288
Total	1,239	281	1,520
Grand total	1,264	283	1,547
Fiscal year 1915	1,420	273	1,693
Fiscal year 1914	1,378	376	1,754

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Trials of officers.

Convicted	24
Acquitted	1
Disapproved	2
Total	27
Fiscal year 1915	38
Fiscal year 1914	41

Trials of enlisted men.

	Navy.	Marine Corps.	Total.
Convicted	1,217	267	1,484
Acquitted	21	12	33
Disapproved or set aside	1	2	3
Total	1,239	281	1,520
Fiscal year 1915	1,384	271	1,655
Fiscal year 1914	1,342	371	1,713

* * * * * * *

Comparative analysis of more frequent offenses by enlisted men tried by general court-martial.

	1916	1915	1914
Absence without or over leave	330	437	127
Absence without or over leave joined with other offenses	58	26	57
Desertion	645	756	887
Desertion joined with other offenses	23	48	137
Drunkenness	23	22	28
Drunkenness on duty	26	19	24
Fraudulent enlistment	85	94	145
Fraudulent enlistment joined with other offenses	23	31	84
Theft	60	39	39
Theft joined with other offenses	8	12	14

FISCAL YEAR 1916.

Data concerning men tried by general court-martial and placed on probation in the service at large under the provisions of General Order 110 of July 27, 1914.

	Navy.	Marines.	Total.	Per cent.
Number of men under sentence of general court-martial placed on probation in service at large under provisions of General Order 110 during fiscal year 1916	560	64	624	.....
Disposition:				
In good standing in service at large June 30, 1916	340	57	397	63.62
Honorable discharge (excellent or very good)	1	2	3	.48
Ordinary discharge (good or fair)	2	2	4	.64
Discharge by purchase	1	1	2	.32
Found unfit by medical survey	2	1	3	.48
Number successful on June 30, 1916 (not discharged for misconduct)	346	63	409	65.54
Dishonorably discharged	186	1	187	29.97
Bad-conduct discharge	0	0	0	.....
In desertion	13	0	13	2.08
Serving sentence	15	0	15	2.41
Number unsuccessful on June 30, 1916 (by reason of misconduct)	214	1	215	34.46

From the above table it will be seen that of the 624 men placed on probation during the fiscal year, 409, or 65.54 per cent, have successfully completed an average probationary period of 6 months (i. e.,

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some of them have served a probationary period of over 11 months, while others had served about 1 month, dependent upon the time of the year in which they were convicted). This percentage will be lowered as time passes, but it is expected that about 35 per cent of these men will completely rehabilitate themselves and be discharged in an honorable status at the expiration of their enlistments.

Operation General Order No. 110, Sept. 27, 1914, to June 30, 1916.

	Navy.	Marine Corps.	Total.	Per cent.
Number of men placed on probation since promulagtion of General Order 110 on July 27, 1914	1,087	137	1,224	.....
Disposition:				
Number who have successfully completed or continued on probation subsequent to Sept. 27, 1914	610	114	724	59.15
Honorable discharge (excellent or very good)	2	2	4	.33
Ordinary discharge (good or fair)	4	2	6	.49
Discharge by purchase	3	1	4	.33
Found unfit by medical survey	5	1	6	.49
Number successfully completing one year or more of probation since Sept. 27, 1914	624	120	744	60.79
Total number unsuccessful during probationary periods subsequent to Sept. 27, 1914	389	11	400	32.68
Bad-conduct discharge	19	0	19	1.55
Undesirable discharge	1	0	1	.08
Deserted	38	6	44	3.59
Serving sentence	15	1	16	1.31
Number unsuccessful during one year's probation	462	18	480	39.21

From this table it will be observed that of the 1,224 men placed on probation under the provisions of General Order 110 during the period from September 27, 1914, to June 30, 1916, 724, or 59 per cent, are serving in an honorable or probationary status; of the total number placed on probation during the year 56 per cent Navy men and 83 per cent Marines have successfully completed an average probationary period of six months. The larger percentage of Marines successfully completing this period of probation is due, it is believed, to the fact that the average Marine probationer is about three years older than the average Navy probationer. Statistics elsewhere given show that this 59 per cent will decrease to about 35 per cent after a period of two years from date of conviction has passed.

Data concerning general court-martial prisoners and detentioners.

	1916			1915			1914		
	State prisons.	Naval prisons.	Disciplinary barracks.	State prisons.	Naval prisons.	Disciplinary barracks.	State prisons.	Naval prisons.	Disciplinary barracks.
Enlisted personnel, Navy and Marine Corps, in confinement June 30	104	463	55	109	547	210	151	746	390
Enlisted personnel, Navy and Marine Corps, who underwent confinement during the year	167	1,351	367	208	1,445	644	251	1,409	1,534
Percentage of enlisted personnel who underwent confinement	.19	1.56	.42	.25	1.71	.79	.31	1.74	1.90

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Prisoners confined in State prisons during fiscal year ending June 30, 1916.

	Connecticut.			New Hampshire.			California.			Pennsylvania.			Grand total.	Corresponding totals.	
	Navy.	Marine Corps.	Total.	Navy.	Marine Corps.	Total.	Navy.	Marine Corps.	Total.	Navy.	Marine Corps.	Total.		1915	1914
Prisoners in confinement June 30, 1915	9	3	12	34	9	43	36	11	47	5	2	7	109	151	.....
Prisoners received during fiscal year 1916	27	4	31	11	3	14	8	3	11	2	....	2	58	57	83
Prisoners confined during fiscal year 1916	36	7	43	45	12	57	44	14	58	7	2	9	167	208	251
Prisoners in confinement June 30, 1916	31	6	37	27	7	34	22	7	29	4	....	4	104	109	151
Transferred to naval prisons	....	....	....	....	....	....	....	....	....	....	....	....	....	5	2
Dishonorably discharged	4	1	5	18	5	23	22	7	29	3	2	5	62	94	96
Died	1	....	1	....	....	....	....	....	....	....	....	....	1	.....	.....

The above table shows that the total number of men received for confinement in State prisons in 1916 was practically the same as 1915, 58, as compared with 83 for 1914. These are all men who have committed crimes for which they would have been sentenced to imprisonment if in civil life. The most common offenses are those of theft and crimes of an immoral nature. This latter class of cases includes crimes against nature, which every effort is being made to eradicate from the naval service, and which during the past year were reduced to a comparatively negligible number.

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SUMMARY COURTS-MARTIAL.

	Navy.	Marine Corps.	Total.	Average for 3 previous years.
Records received and revised	8,274	1,856	10,130	11,062
Cases disapproved	65	10	75	130
Acquitted	107	13	120	194
Bad-conduct discharges executed	918	219	1,137	2,223
Average trials per month	690	155	845	921

The total number of summary court-martial trials for the fiscal year 1915 was 11,132, whereas during the past fiscal year there were 10,130 trials—a decrease of 1,002 trials, or approximately 10 per cent during the fiscal year and a decrease of 932 trials or approximately 8 per cent when compared with the average of the past three fiscal years.

During the past fiscal year 1,137 bad-conduct discharges were executed, whereas 3,080 were executed in 1915. This large decrease in the number of bad-conduct discharges is due in a measure to the large number of chronic liberty breakers and drunkards who were summarily discharged shortly after General Order 110 was promulgated.

From the foregoing figures and bearing in mind that a greater number of men have been handled during the fiscal year 1916 than were handled during the fiscal year 1915, it is believed that the salutary effect on discipline indicated therein is in a measure due

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to the method of handling such offenders, which is embodied in General Order 110 and article 4893, Naval Instructions.

Summary court-martial probationers.

Month.	Successful or still on probation.		Unsuccessful.		Total.	
	Navy.	Marine.	Navy.	Marine.	Navy.	Marine.
July	253	63	172	16	425	79
August	230	43	108	26	338	69
September	206	44	106	13	312	57
October	242	38	114	19	356	57
November	236	48	104	24	340	72
December	195	45	104	21	299	66
January	177	44	92	18	269	62
February	152	46	82	11	234	57
March	186	44	89	14	275	58
April	206	46	96	6	302	52
May	363	46	122	17	485	63
June	187	42	37	2	224	44
Total	2,633	549	1,226	187	3,859	736

From the foregoing table it will be observed that the ratio of successful and unsuccessful summary court-martial probationers continues to be about the same; i. e., approximately two-thirds of the men placed on probation in lieu of being summarily discharged, effect their rehabilitation in the naval service in an honorable status and thereby avoid the stigma of a bad-conduct discharge. In the above table exact data are given for the months of July to December, 1915, but as some of the men tried during the succeeding six months of the fiscal year have not had an opportunity to complete their probationary period, the figures therein are not final. As is done in this report for the fiscal year 1916, the above table will be completed and published in the annual report for the fiscal year 1917.

Actual number of successful and unsuccessful probationers (Navy and Marine Corps) for fiscal year 1915.

Month.	Successful.		Unsuccessful.		Total.	
	Navy.	Marine.	Navy.	Marine.	Navy.	Marine.
October	291	20	82	25	373	45
November	214	33	133	32	347	65
December	220	46	153	63	373	109
January	285	63	157	72	442	135
February	147	50	114	53	261	103
March	133	58	100	43	233	101
April	193	72	135	32	328	104
May	214	70	135	34	349	104
June	292	53	125	27	417	80
Total	1,989	465	1,134	381	3,123	846

The above table is reproduced in part from my last annual report, additional data having been collected to show exactly the number of men who successfully completed their probationary period subsequent to conviction by summary court-martial. A discrepancy of 27 men in the total numbers is accounted for by the fact that cer-

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tain records had not been received in the department prior to the publication of the above tables in the last annual report.

From the above it will be seen that during the fiscal year 1915 there were a total of 3,969 men (Navy and marines) placed on probation pursuant to conviction by summary court-martial. Of this total number a total of 2,454, or approximately 62 per cent, successfully completed the probationary period and effected their rehabilitation in the naval service in an honorable status. The unsuccessful probationers number 1,515, or approximately 38 per cent of the total number. Thus it will be observed that practically two-thirds of the men placed on probation pursuant to sentences of summary courts-martial conduct themselves in such a manner as to effect their unconditional restoration to duty in an honorable status. It is believed that with a return of normal conditions in the demand for labor that the number of successful probationers will be larger, as men will not find employment so easily and so much more remunerative than the naval service, and will not be tempted to commit themselves in order to be summarily discharged with a bad-conduct discharge.

Monthly record of summary courts-martial.

Month.	Bad-conduct discharge (not placed on probation).		Acquitted.		Disapproved.		Approved (exclusive of bad-conduct discharges, acquittals, and disapprovals).		Total cases reviewed.		Grand total.
	Navy.	Marine.	Navy.	Marine.	Navy.	Marine.	Navy.	Marine.	Navy.	Marine.	
July	104	24	9	1	8	2	740	152	861	179	1,040
August	76	10	10	3	4	1	624	136	714	150	864
September	82	25	5	1	6	.....	530	123	623	149	772
October	67	16	8	2	6	2	538	125	619	145	764
November	84	15	3	1	1	.....	522	106	610	122	732
December	88	16	16	1	4	1	554	162	662	180	842
January	57	24	4	1	5	.....	486	122	552	147	699
February	52	15	9	.....	6	2	484	107	551	124	675
March	58	20	12	.....	5	1	516	132	591	153	744
April	63	15	9	2	3	.....	503	127	578	144	722
May	91	19	7	1	8	1	813	160	919	181	1,100
June	96	20	15	.....	9	.....	874	162	994	182	1,176
Grand total	918	219	107	13	65	10	7,184	1,614	8,274	1,856	10,130

DECK COURTS.

	Navy.	Marine.	Total.	Average for 3 previous years.
Records received and revised	4,570	1,715	6,285	8,204
Cases disapproved	10	2	12	33
Acquitted	71	12	83	83
Average trials per month	381	143	524	684

From the above table it will be noted that there has been a steady decrease in the number of trials by deck court during the fiscal year 1916. The total number of trials by deck court for the fiscal year

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1915 was 7,099, whereas there were 6,285 trials during the fiscal year 1916, a decrease of 814 trials, or approximately 11 per cent, during the fiscal year 1916 and a decrease of 1,919, or approximately 23 per cent, when compared with the average number of trials by deck court for the past three years.

Percentages of enlisted personnel in the Navy and Marine Corps tried by court-martial.

	1916		1915		1914	
	Navy.	Marine Corps.	Navy.	Marine Corps.	Navy.	Marine Corps.
Total enlisted force July 1	52,561	9,965	52,667	9,885	48,068	9,777
Enlisted during fiscal year	20,324	3,922	18,844	4,068	18,947	3,889
Total enlisted force during year subject to trial	72,885	13,887	71,511	13,953	67,015	13,666
Tried by general court-martial during year	1,239	281	1,384	271	1,342	371
Percentage tried by general court-martial	1.7	2.02	1.93	1.94	2.00	2.71
Tried by summary court-martial during year	8,274	1,856	9,084	2,048	7,542	2,079
Percentage tried by summary court-martial	11.35	13.37	12.70	14.70	11.25	15.21
Tried by deck court during year	4,570	1,715	5,515	1,584	5,603	2,142
Percentage tried by deck court	6.27	12.35	7.71	11.35	8.36	15.67

NOTE.—The reduction in percentage of men tried by court-martial—general, summary, and deck—would appear to indicate an improvement in discipline throughout the service.

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RIDLEY MCLEAN.

REPORT OF THE MAJOR GENERAL COMMANDANT OF THE UNITED STATES MARINE CORPS.

HEADQUARTERS UNITED STATES MARINE CORPS,
Washington, October 5, 1916.

From: The Major General Commandant.
To: The Secretary of the Navy.
Subject: Annual report of the condition and service of the United States Marine Corps.

MARINE CORPS MANEUVER GROUNDS AND BARRACKS.

1. I commenced my annual report of last year with the following statement: "The paramount need of the Marine Corps is an increase of officers and men. As at present constituted it is inadequate to perform its varied and important duties."

Congress incorporated in the naval appropriation bill for the fiscal year ending June 30, 1917, provisos increasing the corps by 255 officers and 5,034 enlisted men.

No provision was made, however, for barracks in which to house these additional men, or for maneuver fields on which to train them. The proposed development of navy yards will require all available space therein for the industrial establishments, leaving no room for the enlargement of Marine Corps plants except at Philadelphia, which has been made the permanent station of the advance base fixed

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defense force, and at Mare Island, where the Marine Corps west coast recruit training station is located. The establishment, therefore, of a large Marine Corps post on each coast, as training stations for its expeditionary forces, has now become the paramount need of the Marine Corps.

2. Prior to the War with Spain the duties of the Marine Corps were limited to supplying marine detachments to vessels of the fleet, and to furnishing guards for the navy yards. Since that time, however, its field of activity has greatly widened. The duty of seizing, fortifying, and defending advance bases for the use of the fleet in time of war has been assigned to the Marine Corps by the Navy Department, and foreign expeditionary duty, in conjunction with the fleet, has become one of its chief missions.

Preparedness for war demands that training in peace should approximate as closely as possible to war conditions and that a military force should be so organized and equipped as to be constantly in immediate readiness for war service. Furthermore, it is essential in the interests of war efficiency that officers should be given the opportunity to command, in time of peace, the organizations which they would be required to command in time of war. A brigadier general or a colonel, for instance, can not command a brigade or a regiment efficiently in time of war unless he has commanded the unit mentioned in time of peace.

The Navy Department has followed this policy consistently and has mobilized the vessels of the Navy into fleets, squadrons, divisions, and flotillas for the purpose of so training its flag and commanding officers that the entire naval forces may pass from a state of peace to a state of war without any violent changes in their organization. The same principle applies with equal force to the Marine Corps.

Initial steps to supply the need of the corps for a large post on the west coast were taken at the last session of Congress by the incorporation in the naval appropriation bill of a proviso appropriating $250,000 for the purchase of land near San Diego, Cal. It is of vital importance to the efficiency of the Marine Corps that a similar post on the east coast should be provided and equipped.

3. The following considerations should govern in the selection of the site for this post:

(*a*) It should be conveniently located with reference to the waters in which the fleet would be concentrated upon the outbreak of war.

(*b*) It should be located on a harbor of sufficient depth to permit of transports coming alongside the docks.

(*c*) It should have railway facilities.

(*d*) It should be of sufficient extent to provide quarters and maneuver fields for the troops and target ranges for small-arm, machine-gun, and field-artillery practice.

(*e*) Its terrain should be varied, so that it may be suitable for purposes of military instruction.

(*f*) The site should be a healthy one, and it should be so located as to afford facilities for recreation and liberty for the enlisted men.

Strategic considerations demand that a site on the shores of Chesapeake Bay, or of one of its tributaries, which fulfills the other conditions mentioned above, should be selected.

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4. A program based on the general principles outlined above has been embodied in the annual estimates submitted to the department. The main features of this program are as follows:

(*a*) The purchase of a site for a Marine Corps post on the east coast and the beginning of the construction of the necessary buildings thereon.

(*b*) The construction of a portion of the buildings for quartering the west coast expeditionary force on the site to be purchased near San Diego, Cal., together with the necessary docks, roads, etc.

(*c*) The construction of the additional buildings at the navy yard, Philadelphia, Pa., required for the accommodation of the additional fixed defense companies required by the plans of the department for the advance-base force.

MARINE CORPS LEGISLATION.

5. The current naval appropriation bill authorized a substantial increase of officers and enlisted men and provided as well for a much-needed reorganization of the corps. This reorganization not only corrected existing defects but also supplied the corps with a definite policy for its future governance which will, I believe, be most far-reaching, lasting, and beneficial in its effects. The defects mentioned above were, in brief, as follows:

(*a*) An inadequate proportion of officers to enlisted men.

(*b*) An insufficient number of officers in the higher grades.

(*c*) A lack of officers with the rank of brigadier general to command the large advance base and expeditionary forces.

(*d*) A permanent system of staff appointments instead of a detail system.

(*e*) Inequality of promotion of officers in the line and staff.

(*f*) The lack of a procedure, other than trial by general court-martial, by which officers appointed from civil life and from the ranks could be removed from the service should they be found, during their course of instruction, to be unfit or unworthy.

(*g*) Inequality in the loss of files by officers who failed to qualify professionally in their examinations for promotion.

(*h*) The lack of sufficient opportunity for advancement of efficient and faithful enlisted men.

(*i*) No authority for the organization of a Marine Corps Reserve.

(*j*) No proviso for a temporary increase in the Marine Corps, by executive order, in the event of an emergency.

(*k*) An insufficient proportion of noncommissioned officers to privates.

(*l*) No reserve of small-arms ammunition.

6. The naval appropriation bill remedied the defects in question by providing:

(*a*) That the total number of officers of the line and staff of the active list of the Marine Corps shall be 4 per cent of the authorized enlisted strength.

(*b*) That these officers shall be distributed in the various grades in accordance with a proportion based on the needs of the service.

(*c*) That the grade of brigadier general be established, the number of general officers being a definite percentage of the total number of officers authorized.

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(*d*) That the number of officers in each staff department shall be a fixed percentage of the total number of officers; that no further permanent appointments shall be made in the staff departments, but that line officers shall be detailed therein for periods of four years; that hereafter when vacancies occur in the senior grade of the staff departments they shall be filled by detail for a period of four years; and that the heads of the three staff departments shall have the rank of brigadier general while so serving.

(*e*) That in order to equalize future promotions of officers of the line and staff of the Marine Corps, the names of such officers shall be placed on a common list, in the order of seniority each would hold had he remained continuously in the line, and that all advancement in rank, to and including the grade of colonel, shall be made from officers of the next junior respective rank, whether of the line or staff, in the order that their names appear on said list.

(*f*) That appointees from civil life and from the ranks shall be placed on probation for a period of two years, during which time they are subject to removal by the Secretary of the Navy if found to be inefficient or unworthy; and that at the end of two years they shall submit to a competitive professional examination to determine their rank in the service with reference to each other.

(*g*) That officers who fail professionally in their examinations for promotion shall lose a definite number of files at once, instead of being suspended from promotion for one year.

(*h*) That the warrant grades of marine gunner and quartermaster clerk shall be created, and that 20 marine gunners and 20 quartermaster clerks shall be appointed from the noncommissioned officers of the corps.

(*i*) That a Marine Corps reserve be enrolled, consisting of ex-enlisted men, and of civilians with the necessary qualifications.

(*j*) That the President be authorized, whenever in his judgment it might become necessary to place the country in a state of preparedness, to further increase the enlisted strength of the Marine Corps to 17,400 men.

(*k*) That a sufficiently large proportion of noncommissioned officers to privates be authorized to properly perform the duties assigned to the Marine Corps.

(*l*) That a reserve of approximately 15,000,000 rounds of small-arms ammunition be established.

CERTIFICATES OF MERIT.

7. It is again recommended that certificates of merit be authorized for enlisted men of the Marine Corps, similar to those awarded to enlisted men of the Army, for gallant or meritorious service of a degree not sufficiently distinguished to warrant the award of medals of honor. These certificates carry with them an increase of pay of $2 per month, and are an incentive to men to seek opportunities to distinguish themselves.

MAIL CLERKS FOR EXPEDITIONARY FORCES.

8. Under existing law enlisted men of the Navy or Marine Corps may be detailed for duty, under the Post Office Department, as mail

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clerks on board vessels of the Navy. This system has been of great benefit to the naval service. It is urgently recommended that legislation be obtained permitting mail clerks to be similarly detailed for duty with expeditionary forces of marines serving on shore. At the present time these expeditionary forces are without any independent post-office facilities, but are dependent for mail service upon such naval vessels as may be temporarily stationed in the nearest port. Inasmuch as these vessels are frequently changed, or withdrawn, it is manifest that arrangements should be made to provide these forces with post-office facilities of their own. This matter is of especial importance in connection with registered packages, postal money orders, and the official mail.

MARINE BAND.

9. In my last annual report it was stated that increased compensation was essential to the efficiency of the Marine Band on account of the fact that, due to legislation, members of the band had been deprived of the additional compensation formerly received through outside engagements, and that their pay was so small as to make it difficult to obtain the services of high-class musicians. Congress, in acting favorably on this recommendation, has made it practicable for the Marine Band to maintain its former high standard and to continue to be, what the President's band should be, the leading military band of the United States.

EXPEDITIONS.

HAITI.

10. At the date of my last report the First Brigade, consisting of the First and Second Regiments, the Artillery Battalion, and the Signal Company, under the command of Col. Littleton W. T. Waller, was in occupation of the Republic of Haiti and was engaged in the restoration of order and the preservation of peace in that country. This brigade has carried out its mission in a signally effective manner. Peace has been restored, the inhabitants have returned to their various vocations, and business has rapidly progressed. The work of the Navy and Marine Corps in Haiti was of such a successful nature as to cause the State Department to recommend the enactment of a law authorizing officers and enlisted men to accept appointments as officers in the Haitian Constabulary, the organization of which was provided for in the treaty between the United States and Haiti. This recommendation of the State Department was enacted into law on June 12, 1916, and the constabulary has been fully organized under the command of Maj. Smedley D. Butler, United States Marine Corps, as commandant. It consists of approximately 100 officers and enlisted men of the Marine Corps, 12 officers and enlisted men of the Navy, and 2,500 native Haitian gendarmes. It is expected that as Haitian citizens become qualified to serve as officers they will gradually replace the American officers and enlisted men who are now serving as officers of the constabulary.

In connection with this subject, Navy Department General Order No. 197, March 25, 1916, publishing to the service the letter of the

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State Department concerning the services of the Navy and Marine Corps in Haiti, is quoted:

GENERAL ORDER No. 197.

NAVY DEPARTMENT, *Washington, D. C., March 25, 1916.*

SERVICE IN HAITI.

The department has received with gratification a letter from the Department of State dated March 4, 1916, transmitting a copy of a letter addressed by that department on the same date to the chairman of the Committee on Naval Affairs of the House of Representatives, a paragraph of which reads:

"I can not too strongly recommend that officers and enlisted men of the Navy and Marine Corps of the United States may be made available for service in Haiti, not only because I am convinced that the purpose of the treaty would be most advantageously carried to a successful completion by them, but particularly on account of the fact that by their excellent behavior and considerate bearing they have gained the confidence and esteem of the Government and people of Haiti, toward whom this Government has now assumed great responsibilities and obligations."

The department takes much pleasure in expressing, through the medium of this general order, its warm appreciation of the excellent services rendered in Haiti by the officers and enlisted men of the United States Navy and Marine Corps.

JOSEPHUS DANIELS, *Secretary of the Navy.*

SANTO DOMINGO.

11. In April of this year the situation in Santo Domingo became very serious, owing to a revolution against the constituted authorities, which placed in jeopardy the lives and property of American citizens and other foreigners residing in that country.

In accordance with the orders of the commander of the cruiser force, the Sixth and Ninth Companies, having been transferred from Haiti to the *Prairie*, proceeded to Santo Domingo City and landed there on May 5, 1916, occupying the American legation and consulate. This force was later augmented by the First, Fourth, Fifth, Thirteenth, Fourteenth, Nineteenth, and Twenty-fourth Companies.

On May 21, 1916, the marine detachments of the *New Jersey*, *Rhode Island*, and *Louisiana*, which vessels had been placed in reserve, sailed from the United States for Santo Domingo via the *Salem* and the *Memphis*.

On June 1, 1916, a landing was effected at Puerto Plata by a battalion consisting of the *Rhode Island's* and *New Jersey's* marine detachments, and a landing force from the *Sacramento*. During the landing operations Capt. Herbert J. Hirshinger, United States Marine Corps, was killed.

On June 5, 1916, the Fourth and Ninth Companies from Santo Domingo City were landed at Puerto Plata, and on the following day the Field and Staff of the Artillery Battalion, together with the Sixth and Thirteenth Companies, were landed at Monte Cristi.

The commander of the cruiser force having reported that an additional regiment was necessary in order to effect the complete pacification of the interior of Santo Domingo, the Fourth Regiment, under command of Col. Joseph H. Pendleton, was, on June 4, 1916, ordered to proceed with its expeditionary outfit from its station at San Diego, Cal., by rail to New Orleans, La. The regiment left San Diego on

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June 6, 1916, and arrived at New Orleans on June 9, 1916, and with the Eighth Company from New Orleans, embarked and sailed on the *Hancock* on June 11, 1916. This regiment was disembarked at Monte Cristi on June 21 and 22. Col. Joseph H. Pendleton, relieving Col. Theodore P. Kane, was assigned to the command of all the forces operating on shore in Santo Domingo, and was directed to occupy Santiago, an interior city about 75 miles distant from Monte Cristi. At this time the interior of Santo Domingo was under the control of the revolutionary forces, only the principal ports having been occupied by the American forces.

Careful preliminary preparations were made for the expedition, and on June 26, 1916, the column, under the command of Col. Pendleton, advanced from Monte Cristi toward Santiago. It consisted of the following organizations:

Field and Staff, Fourth Regiment.
Field and Staff, Artillery Battalion.
Thirteenth Company (Artillery Battalion).
Eighth Company.
Twenty-sixth Company.
Twenty-seventh Company.
Twenty-eighth Company.
Twenty-ninth Company.
Thirty-first Company.
Thirty-second Company.
Thirty-fourth Company.
The Sixth Company guarded the train.

The Twenty-fifth Company and the marine detachments of the *Louisiana* and the *Memphis* remained on duty at the base at Monte Cristi, while the Fourth, Ninth, and Twenty-fourth Companies and the marine detachments of the *New Jersey* and the *Rhode Island* operated from Puerto Plata toward Navarrete, under the command of Maj. Hiram I. Bearss.

The advance of the main column was continuously resisted by large forces of revolutionists, and was impeded as well by bad roads and the fact that nearly all the bridges were destroyed. It, however, made excellent progress. On July 3 it was found to be necessary, on account of the bad roads, to bring up its train and to sever its communications with Monte Cristi. On July 4, 1916, the force under Maj. Bearss, after several engagements, succeeded in opening the railroad to Navarrete and effected a junction with the main column at that place. Thereafter the expeditionary force was supplied by rail from Puerto Plata.

About this time, through the negotiations of a peace commission, it was arranged that the revolutionists should lay down their arms and that a provisional government should be organized. The column then advanced into Santiago without further opposition, entering that city on July 6, 1916. It has since occupied all of the important points in the interior of Santo Domingo.

This campaign was skillfully and efficiently conducted, and the expeditionary force accomplished the mission assigned to it most successfully and with small loss. Since the occupation of the interior a complete state of peace has reigned in Santo Domingo and law and order have been reestablished.

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12. During the operations in Haiti and Santo Domingo the following-named officers and men of the Marine Corps were killed or wounded in action:

HAITI.

Killed.

Sergt. John Platt, September 25, 1915, at Petite Reviere.
Sergt. Edward C. Thompson, September 27, 1915, near Jeremie.
Pvt. Peter Kulick, July 10, 1916, at Acul Samedi.

Wounded.

First Lieut. Edward A. Ostermann, November 11, 1916, near Bahon.
Corpl. George W. Strout, September 26, 1915, at Haut du Cap.
Corpl. Joseph R. Wedor, January 5, 1916, at Port au Prince.
Corpl. John D. Greelish, May 31, 1916, at Port au Prince.
Pvt. Frank J. Brandle, September 26, 1915, at Haut du Cap.
Pvt. Julus Cooey, September 26, 1915, at Haut du Cap.
Pvt. William Dushek, November 2, 1915, at Le Trou.
Pvt. Vincent Gage, September 26, 1915, at Haut du Cap.
Pvt. Bernard C. Glassner, September 26, 1915, at Haut du Cap.
Pvt. Goff E. Jordan, September 26, 1915, at Haut du Cap.
Pvt. Frederick W. Remani, September 26, 1915, at Haut du Cap.
Pvt. Charles F. Schropp, September 26, 1915, at Haut du Cap.
Pvt. John Wittek, September 26, 1915, at Haut du Cap.
Pvt. Howard P. Youngs, September 26, 1915, at Haut du Cap.

SANTO DOMINGO.

Killed.

Capt. Herbert J. Hirshinger, June 1, 1916, at Puerto Plata.
Corpl. George Frazee, July 1, 1916, at Guayacanas.
Pvt. John J. Awkerman, June 27, 1916, about 27 kilometers from Monte Cristi.
Pvt. Kleme Milles, June 30, 1916, at Dana Antonio.

Wounded.

Capt. Russell B. Putnam, A. P. M., July 3, 1916, at Guayacanas.
Second Lieut. Douglas B. Roben, June 29, 1916, at Alta Mira.
First Sergt. Fernando L. Birrer, June 28, 1916, near Puerto Plata.
Corpl. Leo P. Cartier, June 27, 1916, about 25 kilometers from Monte Cristi.
Corpl. Joseph A. Glowin, July 3, 1916, at Guayacanas.
Corpl. Oscar J. Johnson, July 3, 1916, at Guayacanas.
Drummer Graeg E. Meriwether, July 3, 1916, at Guayacanas.
Trumpeter Julius Goldsmith, June 29, 1916, at Alta Mira.
Pvt. Joseph E. Daley, July 3, 1916, at Guayacanas.
Pvt. Leon B. Dooley, July 3, 1916, at Guayacanas.
Pvt. Edward F. Dorsey, June 27, 1916, about 27 kilometers from Monte Cristi.

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Pvt. Elmer C. Harkness, July 28, 1916, while on sentry duty at Santo Domingo City.

Pvt. William F. Jonseck, July 3, 1916, at Guayacanas.

Pvt. James Martin, July 3, 1916, at Guayacanas.

Pvt. Clive Oates, July 3, 1916, at Guayacanas.

Pvt. Franklin R. Paine, July 3, 1916, at Guayacanas.

Pvt. George E. Raines, June 27, 1916, about 27 kilometers from Monte Cristi.

Pvt. Benjamin Rollins, June 27, 1916, about 27 kilometers from Monte Cristi.

Pvt. Albert Vielbaum, June 27, 1916, about 27 kilometers from Monte Cristi.

WEST COAST OF MEXICO.

13. On November 25, 1915, the First Battalion of the Fourth Regiment, which had been stationed at the San Francisco Exposition, was embarked on board the *San Diego*, and was joined by two companies of the Second Battalion, which had been stationed at San Diego, Cal. On November 28, 1915, the *San Diego* proceeded to the west coast of Mexico, and the regiment was held in readiness for shore operations. The situation having improved the regiment, in February, 1916, returned to San Diego, Cal., and took up its permanent station there.

RELIEF WORK AT SAN DIEGO, CAL.

14. A detachment consisting of two officers and 50 enlisted men, detailed from the Marine Barracks, San Diego, Cal., cooperated with a naval detachment from the Pacific Reserve Fleet in the rescue work incident to the flooding of the Otay and Tia Juana districts near San Diego in February last. Their work was commended in the report of Rear Admiral William F. Fullam, commanding the Pacific Reserve Fleet, and in a memorial of the mayor and common council of the city of San Diego, adopted February 23, 1916, and forwarded to the Commanding Officer, Marine Barracks, San Diego, Cal.

CAMPS OF INSTRUCTION.

15. The current naval appropriation bill provides an appropriation of $31,000 for the establishment and maintenance, under the supervision of the Marine Corps of training camps for the instruction of citizens of the United States who make application and are designated for such training; the said camps to be controlled and regulated by the Secretary of the Navy.

Prior to the above enactment a camp for the instruction of citizens, the expenses of which were defrayed by the Philadelphia Military Training Corps, was established at Lansdowne, Pa., during the period July 21 to August 28. This camp was placed under the supervision of Capt. Logan Feland, United States Marine Corps, and the following officers, who had volunteered their services, were assigned to duty in connection therewith: Capt. Frank Halford, acting quartermaster, Capt. Andrew B. Drum, and First Lieut. Ralph S. Keyser. Twenty enlisted men of the Marine Corps, who had also volunteered their services, were detailed to duty as in-

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structors. I inspected this camp at its opening and at its close, and found that the results achieved were extremely satisfactory. Due to the efforts of the officers and men of the Marine Corps, the citizens who had volunteered for this course of instruction attained in the short time available a very creditable degree of efficiency. In all about 350 citizens received training at this camp.

APPOINTMENT OF SECOND LIEUTENANTS.

16. Last June 6 graduates of the Naval academy were appointed second lieutenants in the Marine Corps, and on August 7, 1916, 18 noncommissioned officers who had been recommended to take the examination for appointment, appeared before an examining board at the Marine Barracks, Washington, D. C. Twelve of these noncommissioned officers passed the examination satisfactorily, and have received their appointments. This examination of noncommissioned officers was a new procedure in the Marine Corps, as heretofore they had taken the examination in competition with candidates from civil life. It was deemed, however, that worthy noncommissioned officers should have the first opportunity for appointment, so as to secure the advantage of being commissioned senior to appointees from civil life. The course followed was in exact accord with the terms of existing law relative to this matter.

On account of the vital and urgent need of additional officers with military training, an examination of graduates of distinguished military colleges was held on September 18, 1916, and as a result of the examination 24 were appointed second lieutenants. These officers, by reason of the military training received at the military colleges, will be available for duty immediately, without the customary 12 months' preliminary instruction required in the case of second lieutenants who have not had the benefit of prior military instruction.

Arrangements have been made for holding a competitive examination of civilian applicants for appointment, under the supervision of the Civil Service Commission, at various places in the United States in November next. It will not be practicable to fill all the remaining vacancies in the immediate future, but it is intended, during the year 1917, to hold additional examinations of noncommissioned officers and civilians.

ADVANCE BASE.

17. Owing to the necessity of utilizing the companies of the fixed defense regiment of the advance base force for infantry duties in Haiti and Santo Domingo, all advance base training during the past year was suspended. As stated in my last annual report, this interruption of training is most detrimental to the efficiency of the advance base organizations. When the additional officers and enlisted men authorized by the current naval appropriation bill have been appointed, enlisted, and trained, it is hoped that it will be unnecessary to divert the fixed defense companies from their specialties for the performance of infantry duties.

An appropriation for advance base material of approximately $189,000 was incorporated under "Bureau of Ordnance" in the

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current naval appropriation bill. This appropriation will greatly improve the equipment of the advance base force and will add, therefore, to its efficiency. Estimates for the next fiscal year have been submitted to the Bureau of Ordnance.

TRANSPORTS.

18. The transport authorized for the Marine Corps was launched on June 17, 1916, at the navy yard, Philadelphia, Pa. It was named the *Henderson*, in honor of Brig. Gen. Archibald Henderson, who was commandant of the Marine Corps from 1820 to 1859, and who had a most distinguished record at sea in the War of 1812, on shore in the Indian wars, and as commandant of the Marine Corps.

The three-year building program enacted into law in the current naval appropriation bill provides for the construction of an additional transport.

MARINE OFFICERS' SCHOOL.

19. The regular course of instruction at the Marine Officers' School, Marine Barracks, Norfolk, Va., was suspended on January 1 last, at which time the class, consisting of 10 graduates of the Naval Academy, completed its course of instruction. The course was resumed in July of this year, and a class of six graduates of the Naval Academy, who had recently been appointed second lieutenants, was assigned to the school for a six months' course. The student officers were encamped at Gettysburg during the month of August, where they received practical instruction in field engineering, minor tactics, military topography, etc. During the first two weeks in September their instruction was continued at the Marine Corps rifle range, Winthrop, Md. This class will graduate in December next, and will be followed by a large class, consisting of appointees from civil life and from the ranks. It will be necessary to increase the number of instructors at the school and to provide additional quarters for the student officers. The construction of a building for this purpose has been authorized by the department, and it will be built and ready for occupancy in the near future.

INSTRUCTION OF OFFICERS AT THE ARMY SERVICE SCHOOLS.

20. The opening of the Army War College, and the Army School of the Line, has been postponed. One officer has been detailed to take the course at the Army War College, and two officers at the Army School of the Line, Fort Leavenworth, Kans.

The existing war in Europe has demonstrated conclusively the great importance of the machine gun. This arm is of special value to the Marine Corps in its advance base and expeditionary work, and it is important that all officers and enlisted men of the Marine Corps should be trained in its use. With this end in view, request has been made that the War Department allow officers of the corps to take the course of instruction at the Army Machine Gun School at Fort Sill, Okla.

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AVIATION.

21. Five officers and 18 enlisted men are now engaged in aviation duty. In the current naval appropriation bill a complete reorganization of the Naval Flying Corps was effected. As soon as a sufficient number of officers and men become available, the Marine Corps complement will be brought up to the number authorized. Aviation has made great strides in the present war, and has become of great importance to the military and naval services.

By direction of the department a Marine Corps aviation company, consisting of 10 officers and 40 enlisted men, will be organized for duty with the advance base force at as early a date as practicable. This company will be trained in the use of both land and water machines. Two officers who have been trained in the use of seaplanes are now under instruction in the use of land planes at the Army Flying School, San Diego, Cal.

INSPECTIONS.

22. During the period covered by this report the undersigned has inspected the Marine Barracks at Port Royal, S. C., Charleston, S. C., Key West, Fla., Pensacola, Fla., and New Orleans, La., and the officers of the Adjutant and Inspector's Department have made the usual annual inspections of most of the posts and organizations of the Marine Corps. Special reports of these inspections have been submitted when made, and the defects noted have been remedied so far as funds available have permitted.

RECRUIT DEPOTS.

23. On October 28, 1915, by order of the Navy Department, the disciplinary barracks at Port Royal, S. C., was turned over to the Marine Corps for use as a recruit depot, in place of Norfolk, Va. The recruit depot was removed to Port Royal on October 30, 1915. The change in location has resulted in greatly increased efficiency, as the training of the recruits is not interfered with by the necessity of guarding a large industrial establishment. A number of improvements have been made in the buildings at Port Royal. Additional barracks buildings and officers' quarters are essential for the proper housing of the personnel.

TRANSPORTATION.

24. The expeditionary forces in Haiti and Santo Domingo have been equipped with motor trucks, and the results obtained have been extremely satisfactory. In the march of the column from Monte Cristi to Santiago motor trucks instead of horses were used for moving the battery of artillery and its caissons. The officer in command of this battery, in his report, recommended the adoption of motor traction for Marine Corps artillery companies. This will be done, and the mobility and usefulness of these organizations will thereby, it is expected, be greatly increased.

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RIFLE PRACTICE.

QUALIFICATIONS.

25. The following table shows the number of enlisted men of the Marine Corps who have qualified as marksman or better in the last six years:

	October 31.			June 30.		May 31.
	1911	1912	1913	1914	1915	1916
Expert riflemen	435	446	663	596	883	1,295
Sharpshooters	1,165	2,067	2,863	2,749	2,536	1,990
Marksmen	784	634	811	757	1,471	2,524
All grades	2,884	3,147	4,307	4,102	4,900	5,809
Per cent of total enlisted strength qualified	0.318	0.335	0.434	0.415	0.493	0.61

During the year every possible effort was made to enable all enlisted men of the Marine Corps to fire for qualification. The absence of a large number of men on expeditionary duty has prevented them from firing the prescribed course.

* * * * * * *

ENLISTED FORCE.

29. Gains and losses in the enlisted force during the year have been as follows:

Enlisted	2,718
Reenlisted from Marine Corps	862
Reenlisted from Army	324
Reenlisted from Navy	18
Joined from desertion	150
Prisoners restored	34
Total gain	4,106
Discharged	3,171
Died	52
Deserted	659
Retired	20
Prisoners sentenced to dishonorable discharge	116
Total loss	4,018
Net gain	88

DISTRIBUTION OF FORCE.

30. Summary of distribution of officers and enlisted men June 30, 1916:

	Officers.	Enlisted men.
On shore duty:		
In the United States	129	4,156
Outside the United States—		
Foreign stations	40	1,243
Expeditionary duty	122	2,893
On board ship:		
Prison and receiving ships	.....	86
Cruising vessels	50	1,678
Total in service June 30, 1916	341	10,056
Allowed by law	377	9,947

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The following shows the distribution of officers and enlisted men on September 30, 1916:

	Officers.	Enlisted men.
On shore duty:		
In the United States	141	4,896
Outside the United States—		
Foreign stations	71	1,243
Expeditionary duty	85	2,993
On board ship:		
Prison and receiving ships		86
Cruising vessels	47	1,678
Total in service Sept. 30, 1916	344	10,896
Allowed by law	597	14,981

APPOINTMENTS, RETIREMENTS, DISMISSALS, DEATHS, ETC.

31. During the year there were six appointments to the grade of second lieutenant from the Naval Academy, and there have been two retirements, one dismissal, and two deaths of officers on the active list.

CAMPAIGN BADGES.

32. Since the last report the following campaign badges and bars have been issued to officers and enlisted men of the Marine Corps: Nine medals of honor (N. G. O. 177), 11 West Indian campaign medals, 3 Civil War campaign badges, 14 Spanish campaign badges, 24 Philippine campaign badges, 16 China campaign badges, 14 Army of Cuban pacification badges, and 52 Nicaraguan campaign badges.

GOOD-CONDUCT MEDALS.

33. During the year 1,021 good-conduct medals and 258 good-conduct medal bars were awarded to enlisted men of the Marine Corps.

34. RECRUITING.

	Fiscal year ending June 30—		
	1914	1915	1916
Total number enlisted	3,889	4,068	3,922
Decrease in enlistments of 3.5 per cent.			
Net desertions	856	786	577
Percentage of desertions to total borne on rolls	6.0	5.4	4.0
Decrease in desertions of 1.4 per cent.			
Apprehended and surrendered from desertion	400	205	150
Decrease in apprehensions of 26.8 per cent.			
Dishonorable discharge, sentence of general court-martial	185	192	187
Reenlisted from Marine Corps	854	820	862
Percentage reenlisting from Marine Corps	21.9	20.2	22.0
Total reenlistments (including those from Army)	1,181	1,277	1,186
Percentage of reenlistments (to total enlistments)	30.0	31.4	30.2
Discharges by medical survey within three months from date of enlistment	20	23	56
Cost per recruit, including transportation	$47.40	$39.93	$55.05
Cost per recruit, excluding transportation	$28.57	$26.51	$34.01

* * * * * * *

GEORGE BARNETT.

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REPORT OF THE DIVISION OF NAVAL MILITIA AFFAIRS.

OPERATIONS OF THE NAVAL MILITIA.

NAVY DEPARTMENT,
DIVISION OF NAVAL MILITIA AFFAIRS,
Washington, D. C., July 1, 1916.

From: Chief of the Division of Naval Militia Affairs.
To: The Secretary of the Navy.
Subject: Report of the organization, training, etc., of the Naval Militia from July 1, 1915, to June 30, 1916.

1. The following report of the organization, training, etc., of the Naval Militia for the fiscal year 1916, with recommendations for the improvement of the Naval Militia, is submitted.

OFFICE MANAGEMENT.

OFFICERS.

2. The Chief of the Division of Naval Militia Affairs during the year was Capt. F. B. Bassett, jr., United States Navy.

3. Lieut. (Junior Grade) F. T. Chew, United States Navy, on June 5, 1916, reported for duty as assistant to the Chief of the Division of Naval Militia Affairs.

4. The following officers are now on duty in the division:

Capt. F. B. Bassett, jr., United States Navy, chief of division.
Capt. T. P. Magruder, United States Navy, ordered as the relief of Capt. F. B. Bassett, jr., United States Navy.
Lieut. (Junior Grade) A. S. Carpender, United States Navy, assistant to chief of division (personnel).
Lieut. (Junior Grade) F. T. Chew, United States Navy, will relieve Lieut. (Junior Grade) A. S. Carpender, United States Navy.
Ensign F. G. Blasdel, United States Navy (retired), assistant to chief of division (matériel).
NOTE.—Capt. F. B. Bassett, jr., and Lieut. (Junior Grade) A. S. Carpender will be relieved on or about July 20, 1916.

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OPERATION OF THE NAVAL MILITIA ACT.

11. The fiscal year 1916 was the second full year during which the Naval Militia operated under the Naval Militia act of February 16, 1914. The operation under this act has been very satisfactory—especially so from an administrative standpoint.

12. All matters pertaining to the provisions of section 21 of the Naval Militia act for ex-officers and enlisted men of the Navy have been handled by the Bureau of Navigation, and the application of section 21 to former officers and enlisted men of the Naval Militia is now under consideration by that bureau.

INSPECTOR-INSTRUCTORS.

13. The Naval Militia act provides that officers and enlisted men of the Navy may, on application of the governor of a State or Territory or the commanding general of the District of Columbia Militia, be assigned to duty as inspector-instructors of the Naval Militia. There are now 32 officers assigned to this duty, but in only 7 cases

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has this duty been independent; in the other cases this duty being in addition to officer's regular duties. Of these 7 officers, 3 are on the active list and 4 on the retired list.

14. It is essential, generally, that officers detailed as inspector-instructors devote their entire time to the Naval Militia, and that they have no additional duties.

15. The instruction of enlisted men of the Naval Militia can, as a rule, best be given by the enlisted men of the Navy. Several petty officers have been detailed as assistants to the inspector-instructors, but the number so detailed is still inadequate. The enlisted men assigned as ship keepers on vessels loaned to the Naval Militia are available for the instruction of the enlisted men on board the vessels loaned and also at drills in the local armories. The assistance given by these men has been very valuable in the instruction of the Naval Militia enlisted men.

16. The assignment of inspector-instructors has been very beneficial, and the importance of assigning officers to those Naval Militia organizations that now have no inspector-instructors so detailed, should not be overlooked by the department. Retired officers have in many cases been given this duty, and it is believed that the employment of retired officers for this purpose is well justified, if active officers are not available.

FEDERAL INSPECTION REQUIRED BY THE NAVAL MILITIA ACT.

17. In accordance with the provisions of section 11 of the Naval Militia act, inspections of all Naval Militia organizations and divisions were made by officers of the Regular Navy during the spring of 1916, to determine whether or not the divisions were entitled to participate in the allotment of Federal funds for the fiscal year 1917. The reports of these inspections were, with the exception of one division of the North Carolina Naval Militia, favorable, and the governors of the several States were so informed.

18. On January 17, 1916, Lieut. Commander Charles H. Fischer, United States Navy, was ordered as Federal inspector of the Naval Militia of the Great Lakes, with headquarters at Erie, Pa. This officer has performed valuable service in inspecting the Naval Militia organizations of western New York, Erie, Pa., Ohio, Michigan, Wisconsin, Illinois, and Missouri.

MEETINGS OF NATIONAL NAVAL MILITIA BOARD.

CHANGE IN PERSONNEL.

19. On November 1, 1915, the Secretary of the Navy appointed Lieut. John A. McGee, California Naval Militia, as a member of the National Naval Militia Board vice Lieut. John T. McMillan, California Naval Militia, resigned.

FIRST MEETING.

20. The first meeting of the National Naval Militia Board during the fiscal year was held in Washington, D. C., December 6–10, 1915. At this meeting various questions concerning changes, and suggestions necessary for the improvement of the Naval Militia were con-

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sidered and recommendations made to the Navy Department. These recommendations as approved by the Secretary of the Navy were subsequently issued to the Naval Militia Service in the form of bulletin of the division of March 21, 1916, on Appendix A. In addition to the members of the National Naval Militia Board, the following Naval Militia officers were present:

Commodore J. P. Parker, retired, Massachusetts Naval Militia.
Commander Alfred B. Fry, New York Naval Militia.
Commander G. A. Eaton, Minnesota Naval Militia.
Officers representing the various bureaus of the Navy Department were present at different times during the meeting and answered various questions of the board.

SECOND MEETING.

21. The second meeting of the National Naval Militia Board was held at Washington, D. C., on April 6–10, 1916, for the purpose of formulating a bill to be introduced into Congress for the federalization of the Naval Militia. All members of the board were present with the exception of Lieut. John A. McGee, California Naval Militia, who was not ordered on account of the distance involved in travel. In addition to the members of the National Naval Militia Board, the following Naval Militia officers were present:

Commodore J. P. Parker, Massachusetts Naval Militia.
Capt. A. B. Fry, New York Naval Militia.
Commander Anthony F. Nicklett, Ohio Naval Militia.
Commander T. T. Nelson, jr., Pennsylvania Naval Militia.

22. A bill was prepared and submitted to the Navy Department for approval. It was approved by the Navy Department and on June 30, 1916, was sent to Congress as an amendment to the naval appropriation bill.

23. As it is considered very important in drawing up instructions for the Naval Militia that the Naval Militia itself be freely consulted and its advice obtained, the policy of this division will be to call meetings of the National Naval Militia Board as frequently as may be considered advisable.

GENERAL ORDER No. 150.

24. The provisions of Navy Department General Order No. 150 covering the standard physical examinations for officers and enlisted men of the Naval Militia have been adopted by all States with the exception of North Carolina and Rhode Island, and the Territory of Hawaii, and the boards for the physical examination of the officers and enlisted men have in all but the cases enumerated above, been appointed. By the provisions of this general order all members of the Naval Militia are required to be examined by a board of medical officers, nominated by the governor and appointed by the Secretary of the Navy. This examination is required periodically every three years, and whenever an officer is promoted from one rank or grade to another.

The fact that officers and enlisted men have been found qualified physically by the above-mentioned board does not relieve them from again being examined by the board of naval medical officers in the event the Naval Militia is called forth for service, and all officers

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and enlisted men must pass this physical examination before they can be mustered into the Federal service, unless such examination is waived by the Navy Department. It is believed that the examinations conducted by this board of State officers will insure a higher physical standard being maintained by all Naval Militia organizations and will reduce to a minimum the number of rejections which would occur previous to mustering into the service of the United States.

General Orders No. 153 and 198.

25. General Order No. 153 was published on July 10, 1915. The principal features of this general order were given in the report of this division for the fiscal year 1915. This general order is operating successfully.

26. General Order No. 198 contains minor changes in General Order No. 153 and also the complete scope of examinations for officers and enlisted men for aeronautic duties only. These examinations for aeronautic duties only are based on conditions similar to the examinations for officers of all other corps as set forth in General Order No. 153, so that a discussion of these examinations is not considered necessary.

Professional Examinations for Naval Militia Officers.

27. A circular letter of this division, No. 89, of August 13, 1915, established a schedule for the professional examinations of Naval Militia officers. In preparing this schedule it was decided to hold four examinations prior to February 16, 1917, so that officers might be given an opportunity to fully qualify professionally previous to the date on which the Naval Militia act finally becomes effective. To date two of these examinations have been completed and two more will be held. The complete examination papers of all officers are kept as a part of their records in the files of the division of Naval Militia affairs.

28. There are to date 92 Naval Militia officers fully qualified professionally for their ranks in all corps, and in addition to the officers fully qualified professionally, many officers have qualified in certain parts of their examinations. The names of all Naval Militia officers who are fully qualified professionally in accordance with General Order 153 are now published in the Monthly Navy and Marine Corps List and Directory, and will be published in the Annual Naval Register.

29. The Navy Department has approved a "Certificate of qualification" to be issued to the Naval Militia officers who are found fully qualified professionally, and these certificates will be issued to each individual officer as soon as practicable after his professional examination has been completed. These certificates read as follows:

This is to certify that in accordance with existing law ——— ——— has qualified and is eligible to be called forth by the President of the United States into the service of the United States as a ——— in the Naval Militia of ———, without further professional examination.

Given at Washington, D. C., this —— day of ———, 19—.

Chief of Division of Naval Militia Affairs.

———, *Secretary of the Navy.*

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30. A card index is kept for each officer of the organized Naval Militia. This card is known as N. N. M. 40. The following information is kept corrected to date on these cards: Name, rank, State, city, battalion, division, present duty, civil occupation, date of birth, native or naturalized, date of entry into the Naval Militia service, date of present commission, licenses held, residence, next of kin, a résumé of all duty performed, record of all examinations and qualifications, Regular and Naval Militia service, merchant or pleasure craft service.

Strength of Organizations.

31. The personnel returns of the Naval Militia, June 30, 1916, show a total of 9,808 officers and enlisted men, an increase of 32 officers and 1,464 enlisted men over the strength of June 30, 1915. For detailed statement of strength see Appendix B.

32. At the present time many of the organizations are deficient in many of the ratings required by General Order 153. This deficiency is principally noticeable in the artificer branch (deck force), special branch, and commissary and messmen branches. The number of officers and enlisted men required in each organization is specified in General Order No. 153, and all but two States have adopted this as a standard. It is expected that before the Naval Militia act finally becomes effective in February, 1917, the organizations will have been rounded out and the number and proportion of officers and enlisted men brought to accord with the standards prescribed. This rounding out of the organizations is of the utmost importance, as it has been very difficult in arranging cruises for the Naval Militia to counteract the marked shortage in men in the branches enumerated above. It is also noted that some of the organizations are top-heavy with high ranking officers, and enlisted men too high in rating; but this difficulty will be remedied when the Naval Militia act becomes fully effective February 16, 1917.

New Organizations and Divisions.

33. It was stated in the annual report of this division for the fiscal year 1915 that new organizations were being formed in the State of Texas and Territory of Hawaii. The formation of these organizations has progressed favorably and, while still in their infancy, it is anticipated that they will be completely organized and will constitute efficient units of the Naval Militia in the near future.

34. It is regretted that the expected formation of new organizations in the States of Alabama and Delaware has not been accomplished.

35. New divisions were established in States already maintaining Naval Militia organizations as follows:

Los Angeles, Cal., aeronautic section.
San Diego, Cal., deck division.
Washington, D. C., aeronautic section.
Sarasota, Fla., deck division.
Jacksonville, Fla., deck divisions (2).
Jacksonville, Fla., engineer division.
Key West, Fla., aeronautic section.
Chicago, Ill., marine company.
Honolulu, Territory of Hawaii, deck division.

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Honolulu, Territory of Hawaii, engineer division.
Slidell, La., deck division.
Baltimore, Md., deck division.
Newburyport, Mass., deck division.
Marblehead, Mass., deck division.
Detroit, Mich., engineer division.
Bemidji, Minn., deck division.
Crosby, Minn., deck division.
Lindstrom, Minn., deck division.
Newark, N. J., aeronautic section.
New York, N. Y., aeronautic section.
Brooklyn, N. Y., marine company.
Niagara Falls, N. Y., deck division.
Cleveland, Ohio, marine company.
Portland, Oreg., marine section.
Galveston, Tex., deck division.
Houston, Tex., deck division.
Everett, Wash., deck division.

36. The Wisconsin Naval Militia was, by executive order of the governor of Wisconsin, disbanded during April, 1916. The formation of a new battalion of the Wisconsin Naval Militia at Milwaukee, Wis., has been authorized and it is hoped that this battalion will be organized during the fiscal year 1917.

37. The division again wishes to emphasize its approval and hopes that Naval Militia organizations will be established in all States having seacoast frontage on the large lakes, or bordering on navigable rivers, that have not Naval Militia organizations at the present time. It is believed that all States so located should have such organizations and should bear their part in creating this form of a reserve for the Navy.

38. The recruiting poster which is now being used by the Naval Militia has proven very satisfactory and has materially increased the enlistments in several of the Naval Militia organizations.

Appropriations.

39. There are two appropriations for the Naval Militia:

(*a*) "Arms, Uniforms, Equipment, etc., Naval Militia," a fixed annual appropriation of $200,000 permanently provided by section 10 of the Naval Militia act. This appropriation is available for the purchase and upkeep of material, equipment, uniforms, and naval stores of all kinds for the use of the Naval Militia. At the present time all organizations are not fully outfitted, and the sum available under this appropriation is not sufficient to fully outfit all organizations in any one year or in several years. It will, however, based on the present strength of the Naval Militia, when organizations are once outfitted, maintain them and suffice for the upkeep of the material and equipment in their possession. For this reason, an increase in this appropriation has not been requested at this time, but a material increase in strength of the Naval Militia will necessitate an increase in the appropriation.

(*b*) "Arming and Equipping Naval Militia," in the annual naval appropriation bill, carried for the fiscal year 1916, $250,000. This appropriation must, by the terms of the Naval Militia act, provide for the pay, transportation, and subsistence of officers and enlisted men of the Naval Militia participating in cruises, or encampments on shore, authorized by the Secretary of the Navy; the clerical and

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office expenses of the Division of Naval Militia Affairs; and the expenses in connection with the National Naval Militia Board appointed by the Secretary in accordance with section 17 of the Naval Militia act. This sum was found to be entirely inadequate, and an increase to $310,737 was recommended and approved by the Navy Department as a part of the naval appropriation act for the fiscal year 1917. After this recommendation had been submitted, it was proposed to mobilize the Naval Militia of all organizations except California, Oregon, and Washington during the summer of 1916 on vessels of the United States reserve force, United States Atlantic Fleet. To cover the additional transportation expenses in connection with this cruise, an increase in the appropriation of $77,000 was requested. This made a total appropriation of $387,737. This increase will afford sufficient funds during the fiscal year 1917 to fully pay all expenses in connection with the cruises. These cruises constitute the most important part in the training of the Naval Militia for national defense, and the payment by the Federal Government of the expenses in connection with these cruises is just and proper.

40. It is the intention during the coming fiscal year to devote the appropriation "Arms, Uniforms, Equipment, etc., Naval Militia" to outfitting all organizations with uniforms and clothing, devoting the remainder to the upkeep of the present equipment and to the purchase of additional material and equipment, such as rifles, revolvers, etc. There is always a large amount of this appropriation to be expended for the purchase of coal, water, ammunition for target practice, etc., which materially reduces the amount available for the purchase of clothing and other equipment.

The appropriation "Arming and Equipping Naval Militia" will be devoted during the fiscal year 1917 to the pay of officers and enlisted men for participating in the regular cruises; for participation of Naval Militia officers and enlisted men in target practice of the United States Atlantic and Pacific Fleets; for participation in a tour of duty for petty officers in small-arms practice; and for such other tours of duty as may be considered advisable for the training of the Naval Militia.

Property Accountability.

41. For many years property has been issued to the Naval Militia that has not been properly accounted for, but this division now has a card index of all Federal property in the possession of the Naval Militia. This card index is complete for all Federal property in possession of the Naval Militia, and the States will be held to a strict accountability for all Federal property in their possession. Property loaned to the Naval Militia belongs to the Federal Government, and it must be cared for and accounted for as such.

The amount of clothing and equipment now issued to the Naval Militia is, in many cases, not adequate, due to the small appropriations, but during the past year many deficiencies have been supplied.

The principal causes of complaint have been the failure of the States to properly account for the Government property in their possession. The Naval Militia act requires certain returns from the States having Naval Militia organizations to be made to the Navy Department; and although the returns and correspondence have been

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reduced to a minimum, the making of these returns has enormously increased the absolutely essential clerical work pertaining to the Naval Militia in those States. The failure to make the necessary returns has been caused partly by the fact that the State authorities have not known how to make these returns, but principally because the States have not yet begun to realize the burden put upon them by the passage of the Naval Militia act, and have not, in the majority of cases, provided a State clerical force made necessary by its provisions. States having Naval Militia organizations have been urged to make provision for the necessary State clerical help. The question was taken up by the National Naval Militia Board. (See Appendix A.)

42. Ensign F. G. Blasdel, United States Navy, of the Division of Naval Militia Affairs, made the following trips during the year for the purpose of instituting a proper system of accounting for Federal property in the possession of the Naval Militia:

July, 1915, North Carolina.
August 11–22, 1915, Erie, Pa.
October, 1915, New Jersey.
January 6–12, 1916, Philadelphia, Pa.
February 18–25, 1916, Charleston and Beaufort, S. C.

The work done by Ensign Blasdel was highly satisfactory, and much good has accrued from his visits.

Vessels Loaned to the Naval Militia.

43. The following vessels were loaned to the Naval Militia organizations:

Amphitrite, State of Connecticut, in "Reserve commission."
Chicago, State of Pennsylvania, in "Reduced complement commission."
Flusser, State of Louisiana, in "Reduced complement commission."
Kearsarge, State of Massachusetts, in "Reduced complement commission."
Lamsor, State of South Carolina, in "Reduced complement commission."
Marblehead, State of Oregon, in "Reserve commission."
Oregon, State of California, in "Reduced complement commission."
Preston, State of Florida, in "Reduced complement commission."
Reid, State of Texas, in "Reduced complement commission."
Smith, State of Florida, in "Reduced complement commission."

Note.—The destroyers *Flusser*, *Lamson*, *Preston*, *Reid*, and *Smith* failed to report to their respective States, due to existing conditions of national affairs which could not be avoided.

The following vessels were withdrawn from the Naval Militia organizations indicated:

Amphitrite, from Louisiana Naval Militia.
Chicago, from Massachusetts Naval Militia.
Marblehead, from California Naval Militia.

During a hurricane at New Orleans, La., the U. S. S. *Stranger*, loaned to the Louisiana Naval Militia, was sunk, and later was stricken from the navy list.

44. The loan of the *Oregon* to the California Naval Militia, the *Kearsarge* to the Massachusetts Naval Militia, and the *Chicago* to the Pennsylvania Naval Militia in the status of "Reduced complement commission" is a new form of loan of naval vessels to the Naval Militia. Under this form of loan, the vessels remain under the command of an officer of the Regular Navy and are manned by a small

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complement of regular officers, and a complement of approximately 40 per cent of a full service complement of enlisted men. The vessel constantly remains under the command of a naval officer and is used by the Naval Militia for training purposes and may be withdrawn at any time for such use as the Navy Department may deem necessary.

45. The vessels loaned to the Naval Militia are in most cases entirely inadequate for the purpose, and steps should be taken to provide proper vessels on which the officers and enlisted men can be properly trained. The department has recommended to Congress an appropriation to repair the U. S. S. *Topeka* for the Naval Militia of Minnesota and to purchase a vessel for the Naval Militia of Illinois.

46. The recommendations of this division in its last two annual reports that the older battleships be loaned to the Naval Militia under suitable agreements with States has been carried out to the extent mentioned above, covering the assignment of the *Oregon* and the *Kearsarge*. It is hoped that this recommendation may be fully complied with and that a battleship may be loaned to the First Battalion New Jersey Naval Militia, to be stationed at New York, and that battleships may be loaned to the Second Battalion New Jersey Naval Militia and to the Pennsylvania Naval Militia stationed at Philadelphia, this ship to replace the *Chicago*, now loaned to those organizations.

47. In general, the practice should be followed that the Naval Militia train in time of peace on the vessels or on similar vessels to those that they will man in time of war. Gunboats and the older type of destroyers, which through age will not accompany the fleet, should be assigned to the Atlantic, Gulf, and Pacific coast organizations of the Naval Militia not recommended to be provided with battleships; the organizations on the Great Lakes should be provided with small gunboats and the river organizations with special type river gunboats to be built especially for that service. Generally speaking, the vessels loaned to the Naval Militia should be of a size commensurate with that of the organizations using them, in order that a large part of these organizations may cruise at one time, thus cutting down the number of cruises necessary to train the personnel.

48. The condition of the vessels loaned to the Naval Militia as shown by the report of the Board of Inspection and Survey for Ships shows a marked improvement over that noted in the annual report for the fiscal year 1915. This division again renews its request that an adequate number of enlisted men of the Regular Navy be detailed to the Naval Militia vessels as ship keepers. While it is not the policy of the division to condone lack of care shown by the Naval Militia in instances of deterioration, it is felt that the blame for the deterioration is not entirely with the Naval Militia but is due in a large degree to the shortage of enlisted men of the Navy furnished as ship keepers.

49. There are still certain Naval Militia organizations which have no ship assigned to them for training purposes, and it is recommended that steps be taken to provide ships for loan to all Naval Militia organizations. A Naval Militia organization can not exist or attain any degree of efficiency unless it has some vessel loaned to it on which to train.

50. For a list of vessels loaned to the Naval Militia see Appendix C.

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SUMMER CRUISES.

51. The summer cruises were participated in by a large percentage of the personnel of nearly all the Naval Militia organizations, and on the whole were satisfactory. Reports of these cruises are published in Report of Naval Militia Cruises, 1916. (For a summary of the cruises see Appendix D.)

52. The division wishes again to make recommendations as set forth in its annual report for the fiscal year 1915, in connection with the Naval Militia cruises.

(*a*) An officer of the Navy should be on all vessels loaned to the Naval Militia on their annual cruises.

(*b*) Officers making these cruises should be ordered to report at least four or five days before the commencement of the cruise in order that they may give instruction regarding the routine of drills, assist in making plans for the cruise, and in making out watch, quarter, and station bills. This is necessary in order that the maximum benefit may be received from the cruise and that this division may be properly informed of the work of the organizations.

(*c*) It is of the utmost importance that the officers and enlisted men of the Naval Militia should have ample notice of the dates for the annual cruise in order that they may arrange for their vacations. The dates of cruises for the summer of 1916 were determined a sufficient time in advance and the Naval Militia notified so that there was little difficulty in arranging the vacations of the officers and enlisted men. This not only increases the number of officers and enlisted men who can make the cruise, but materially decreases the work in this division in arranging the details of such cruises.

(*d*) The cruises of the Naval Militia should be attractive, but every effort should be devoted to work of instruction. Liberty should be a secondary consideration.

(*e*) Organizations should be divided up among various ships, and no one should be overcrowded with several organizations.

(*f*) At the present time the duration of Naval Militia cruises is approximately 15 days and estimates for Congress are based on that period. Fifteen days has been considered the average length of the annual vacation that men in civil life can get, but it is thought that the increased interest in preparedness will make it possible to make longer cruises. The Division of Naval Militia Affairs is considering the policy of estimating next year for a 15-day cruise for the organizations of States that require a small amount of travel and 20 days for States like Minnesota and Louisiana that consume about 4 days for the round trip from home to ship, in order that such States may have the same length of time at sea as the near-by States.

PARTICIPATION IN CRUISES IN VESSELS OF THE ATLANTIC FLEET, ETC.

53. In accordance with the provisions of section 12 of the Naval Militia act authority was granted by the Secretary of the Navy for certain members of the Naval Militia to participate in cruises on vessels of the regular service.

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54. The following Naval Militia officers and enlisted men were granted authority and participated in cruises on vessels of the United States Atlantic Fleet:

Commander C. L. Poor, First Battalion, New York Militia.
Commander E. J. Kelly, Second Battalion, Ohio Naval Militia.
Lieut. Commander H. G. Black, Texas Naval Militia.
Lieut. Commander G. B. Graham, First Battalion, Florida Naval Militia.
Lieut. Commander N. F. Hugo, Minnesota Naval Militia.
Lieut. R. R. Riggs, First Battalion, New York Naval Militia.
Lieut. H. Vanderwerp, Second Battalion, Michigan Naval Militia.
Lieut. J. T. Wentz, Louisiana Naval Militia.
Lieut. (Junior Grade) N. R. Wilber, Pennsylvania Naval Militia.
M. J. Monahan, E. B. Delano, G. E. Herrick, M. L. Lewis, H. T. German, and A. Schreiner, seamen, first class, Third Battalion, New York Naval Militia.

Several enlisted men made cruises on vessels of the Regular Navy. Several enlisted men were authorized to pursue courses of instruction, but due to various reasons were unable to take advantage of the authority granted.

55. Seventeen petty officers were granted authority to participate in a two weeks' tour of duty at the Marine Corps Rifle Range, Winthrop, Md., during September, 1915. This duty proved very valuable, and an estimate to enable two petty officers from each Naval Militia battalion to participate in a similar course of instruction during the ensuing fiscal year was contained in the estimate for appropriation "Arming and Equipping Naval Militia, 1917." The petty officers who participated in the above-mentioned tour of duty were divided among the States as follows: New York, 5; New Jersey, 4; North Carolina, 3; Massachusetts, 3; District of Columbia, 2.

INSTRUCTION UNDER SECTION 13 OF THE NAVAL MILITIA ACT.

56. The department should encourage the Naval Militia to take advantage of section 13 of the Naval Militia act, which allows officers and enlisted men of the Naval Militia, when recommended by the governor of any State or Territory or by the commanding general of the District of Columbia Militia, to attend and pursue a regular course of study at military or naval schools or colleges in the United States. This section also provides that on approval of such request by the Secretary of the Navy such officers and enlisted men shall receive from the annual appropriation for the support of the Navy (not from Naval Militia appropriations) the same travel allowances and quarters or commutation of quarters to which officers and enlisted men of the Regular Navy would be entitled for attending such school or college, under orders of the proper authority. If the provisions of this section are carried out, it is thought that much good will accrue to the Naval Militia, and thus to the naval service.

57. The following Naval Militia officers and enlisted men were granted authority to pursue courses of instruction under section 13 of the Naval Militia act:

Assistant Paymaster G. E. Dow, Oregon Naval Militia, Navy Pay Officers' School, Washington, D. C.
Ensign L. H. Harris, First Battalion, New York Naval Militia, Naval Aeronautic Station, Pensacola, Fla.
Electrician, second class, D. Crane, Pennsylvania Naval Militia, electrical school, navy yard, New York.
Seaman R. Kocerobsky, Illinois Naval Militia, electrical school, navy yard, New York.

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Special Naval Militia Schools.

58. The establishment by the State of Massachusetts of what is known as the "Massachusetts Naval Militia Cadet School," which was mentioned in this division's annual report of 1915, has been justified.

The members of this school participated during the summer of 1915 in a cruise on board the U. S. S. *Nebraska* during the maneuvers of the United States Atlantic Fleet. The first class of this school has nearly reached its time for graduation, and graduates will be commissioned as acting ensigns in the Massachusetts Naval Militia.

Naval Militia Target Practice.

59. Naval Militia target practice for the year was held by most of the organizations. The final standing of the organizations has not yet been determined, but when determined a full report of the target practice will be published by the office of Target Practice and Engineering Competitions in a separate report.

On August 4, 1915, Capt. F. B. Bassett, chief of this division, presented the division trophy in behalf of the Navy Department to the First Division, Second Battalion, Ohio Naval Militia, at Cleveland, Ohio, and on August 5, 1915, the organization trophy to the Illinois Naval Militia at Chicago, Ill. Both of these presentations were made with proper ceremonies.

Ship Keepers.

60. The division again invites attention to the shortage of ship keepers on board vessels loaned to the Naval Militia. This shortage has been a decided drawback to the efficient upkeep of these vessels throughout the year. The Board of Inspection and Survey has frequently noted the unsatisfactory condition of these ships in the past and has recommended a larger number of ship keepers in many cases.

61. Officers and men of the Naval Militia give their time voluntarily, and what time they are able to give should be devoted to drills and instruction, and as much cleaning, painting, and repair work as possible should be taken out of their hands. The ship keepers assigned to vessels loaned to the Naval Militia organizations are, by the Naval Militia act, in addition to the regular Naval Establishment. Estimates have been submitted for the coming year for a proper number of ship keepers for vessels loaned to the Naval Militia in addition to the regular Naval Establishment.

62. The policy of not relieving the senior ship keepers of the engineer force and of the deck force until new men have been on duty long enough to understand their duties has had a beneficial effect.

63. The greatest care should be exercised by the department in selecting ship keepers for Naval Militia vessels, and men should be selected who have good-conduct records, and whose qualifications fit them for assisting in the instruction of the enlisted personnel of the Naval Militia both on board the ship to which they are assigned and in the armories.

64. The policy of not advancing in rating enlisted men of the Navy while serving on other than cruising vessels (which includes Naval Militia vessels) it is thought works to the detriment of the Naval

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Militia. Many good men who might otherwise desire duty on Naval Militia vessels object to such duty on account of the impossibility of advancement in rating, and it is recommended that especially qualified ship keepers be advanced, provided they are recommended and pass satisfactory examinations held by inspector-instructors.

Radio Outfits.

65. The Bureau of Steam Engineering has agreed to furnish 10 field radio sets for Naval Militia each year, so that in the course of time the Naval Militia will be fully equipped with the necessary instruments for proper instruction of radio operators. At the present time all ships loaned to the Naval Militia having generating sets with power enough to warrant radio installation have a radio outfit.

Typhoid Prophylactic.

66. The report of inspection of Naval Militia organizations, as required by section 11 of the Naval Militia act, has shown in many instances that officers and men have failed to take advantage of the opportunity offered to take the typhoid prophylactic. This division has again urged that all organizations take advantage of this opportunity.

* * * * * * *

PRINCIPAL DEFECTS OF THE NAVAL MILITIA.

69. The division renews its report on the defects in the Naval Militia as shown in its annual report for the fiscal year 1915. Many of these defects have been partly remedied, but there is still a great deal of room for improvement.

(*a*) All official correspondence should be forwarded via the adjutant general. This is often violated.

(*b*) Too much time is devoted to Infantry drill. It must be remembered that the primary duty of a Naval Militia organization is to prepare both officers and enlisted men for the duties they will perform in time of war in the Navy. These duties will be on board ship, and this fact should influence the drills held.

(*c*) Correspondence is often addressed to the chief of the division by name. This often results in delay, and should be corrected.

(*d*) Failure of the Naval Militia to answer correspondence. It is manifestly impossible to carry on business with an organization unless the correspondence is promptly acted on. This has been frequently called to the attention of all organizations, but in many cases without effect. Letters and forms sent are frequently lost, necessitating additional letters and telegrams to obtain answers to routine correspondence.

(*e*) Failure of the Naval Militia to read correspondence. It is quite apparent from some letters that are received that much of the correspondence, although perhaps received, is never read.

(*f*) General lack of instruction. This defect will be greatly offset by the assignment of inspector-instructors. All divisions have now been furnished with complete sets of textbooks, and with these books systematic instruction can be carried on.

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(*g*) Needs are not anticipated, and requisitions for coal, clothing, etc., are submitted at the last minute, often by telegraph. This division has been greatly embarrassed by repeatedly requesting other bureaus in the Navy Department to furnish emergency clothing, emergency ammunition, and emergency supplies of all kinds. Many organizations apparently believe that when they want clothing or supplies they can wait until a day of two before it is to be used, and then telegraph to this division, requesting immediate shipment by express. This is manifestly impossible, and if the practice continues, it will be necessary for this division to adopt an absolute policy to honor no requisitions for supplies except for delivery not less than one month from the date of receipt of the requisition.

(*h*) Carelessness in care of Government property. An improvement in this is noticeable, but there is room for further improvement. (See "Property responsibility.")

(*i*) Carelessness in uniforms. Uniform regulations have been issued for both officers and enlisted men by the Navy Department. There is no excuse for either officers or enlisted men wearing other than regulation uniforms.

(*j*) Failure to report defects of ships and of other property. On many occasions no effort is made to inform this division of defects which should be reported immediately.

(*k*) Lack of sufficient engineer divisions in the Naval Militia is apparent. It is desirable to enlist engineers in the Naval Militia, so that it will not be necessary to hire them to make cruises.

Reports Required by Naval Militia Organizations.

70. For the convenience of the Naval Militia organizations, and to insure that the required reports are forwarded to the Division of Naval Militia Affairs, Form NNM No. 48 has been prepared (see Appendix F).

Principal Needs of Naval Militia.

71. The principal needs of the Naval Militia are as follows:

(*a*) Inspector-instructors for all organizations. Where possible, these officers should have no other duty and their time should be devoted exclusively to training of the Naval Militia. There should be detailed as assistants to these officers such enlisted men as may be necessary for the proper carrying on of schools of instruction and such other instruction as may be necessary. The officers and enlisted men of the Naval Militia are required to pass certain examinations laid down by the Navy Department in General Order No. 153, and it is manifestly impossible for them to do so without proper instruction and preparation. This instruction can not be obtained except by the aid of inspector-instructors, and it is hoped that the Navy Department will be able to provide these officers.

(*b*) Suitable vessels for loan to Naval Militia organizations.

(*c*) Increase in the complement of ship keepers on vessels loaned to the Naval Militia. It is impossible to keep the ships in proper condition unless the number of naval ship keepers is increased.

(*d*) Yeomen for all organizations.

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(*e*) Policy of the Navy Department as to duties which the Naval Militia organizations are to perform should they be called out in time of war. This should be determined and the organizations definitely assigned to such duty and exercised in time of peace in this assignment when opportunity offers.

(*f*) Many of the organizations are not recruited up to full strength, and an effort should be made to recruit all organizations up to the number allowed by the State laws, and where this number is manifestly too small the legislatures should be requested to increase the authorized number.

(*g*) Adoption by each State at the earliest date practicable of the provisions of Navy Department General Order No. 153, as a standard for the Naval Militia organization in that State. This must be done in order that the Naval Militia of the State may be called forth without further professional examinations in time of war.

Object of the Naval Militia.

80. The object of maintaining a Naval Militia is that a dependable force may be available for the use of the Federal Government in case of actual or threatened war.

81. By the Naval Militia act, the Naval Militia, qualified in accordance with the act, and any existing naval reserve now or hereafter organized, shall be called into the service of the United States in advance of any volunteer naval force which it may be then determined to raise. It should, therefore, be the aim of the Navy Department to train the Naval Militia in time of peace so that the officers and enlisted men will be able to render the most efficient service in time of war. To accomplish these ends they should be trained as much as possible in time of peace on the ships or on the class of ships on which they will serve in time of war. The Naval Militia should know what their assignment will be in time of war and this incentive will, it is believed, make the Naval Militia realize that they are a part of the national defense, and cause them to exert every effort to become efficient in their prospective war billets.

82. Specializations of Naval Militia is not recommended at this time, as it is thought that the best results can be obtained if every officer and enlisted man is trained in time of peace to become efficient for general naval service. The officers and enlisted men of the Regular Navy are better fitted than the Naval Militia for special work, such as on torpedo boats, mine-sweeping vessels, mine-laying vessels, submarines, etc., although it might be necessary in time of war to augment the crews of such vessels by a limited number of Naval Militia officers and enlisted men.

83. These recommendations were contained in the annual report of this division for 1915, and are again renewed. It has been the endeavor of this division during the past year to increase the efficiency of the Naval Militia so that in the near future it may reach the point where it can be mobilized with the shortest possible notice and be available for Federal service.

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New Legislation Recommended.

84. This division renews its recommendation that the privileges of free transmission through the mails enjoyed by Federal officials be extended to the Naval Militia under such restrictions as will prevent its abuse. The passage of the Naval Militia act has greatly increased the correspondence to be handled by the adjutants general of the States and by the officers of the Naval Militia. The provision of the postal regulations that allows Government officers when requesting an answer to an official letter to inclose a penalty envelope, addressed to himself, does not satisfy. There is a large amount of correspondence between the adjutants general and the commanding officers of Naval Militia divisions and from the commanding officers of Naval Militia divisions to adjutants general and others not Government officers. This business is considered as Government business as it is instituted by the Navy Department. The use of stamps is becoming irksome to the State authorities, and legislation is recommended to remedy this condition. The passage of the Army bill, federalizing the National Guard, and the expected passage of a bill to federalize the Naval Militia, make it more than ever necessary that the franking privilege be extended to the Naval Militia.

Leave for Naval Militia with Pay.

85. Several large business corporations, banks, etc., have directed that their employees who are members of the Organized Militia, of which the Naval Militia is a component part, be allowed leave with full pay to attend to their military duties. This leave does not count against their regular annual leave, which is still given them with full pay. It seems but proper that the Federal Government should allow its employees to participate in any ordered annual military duty under the same conditions. At the present time the only Naval Militia organization that is entitled to military leave under these conditions is the Naval Militia of the District of Columbia. Legislation is recommended to make it possible for all Federal employees to participate in their annual military tours of duty without detriment to their private interests, the loss of any pay, or the loss of any of their regular annual leave.

86. Legislation is recommended to enable the commanding officers of Naval Militia divisions and battalions while cruising on vessels of the Navy to try by court martial, under the State laws, such members of the Naval Militia of their State as may commit offenses warranting court martial, and to punish their men for minor offenses committed while they are on board vessels of the Regular Navy in an official capacity, subject to the approval of the commanding officer of the ship. Officers of the Regular Navy can not by law inflict punishment on Naval Militia officers or enlisted men while such officers and enlisted men are on board the vessel under command, and, unless their own State officers can punish such offenders, they may go unpunished.

Mobilization of the Naval Militia.

87. During the year complete plans covering the mobilization of the Naval Militia in case they are called forth by the President, in

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accordance with the provisions of the Naval Militia act, have been prepared. These instruct the officers and enlisted men to proceed to the Federal rendezvous which are designated by the Navy Department and there complete their professional examinations, and take the physical examination prior to being mustered into the service of the United States.

After being mustered into the service of the United States, enlisted men are detailed to duty by the commanding officer of the Federal rendezvous, and the officers are detailed to duty by the Navy Department.

In working up the details of this mobilization plan, an effort has been made to make all preliminary arrangements so that should the Naval Militia be called forth, it will simply be necessary to inform the governor of the State by telegram, and steps in connection with the mobilization will be automatically taken up.

Death of Member of Naval Militia.

88. On August 23, 1915, Edward J. Managan, State of Connecticut Naval Militia, was lost overboard from the U. S. S. *Kentucky* at Tangier Sound, Va. It was impossible to recover the body.

Special Duties Performed by the Naval Militia.

89. The Illinois Naval Militia rendered valuable assistance in the recovering of bodies and rescuing passengers from the steamer *Eastland* when that vessel overturned in the Chicago River in August, 1915.

During the flood at Erie, Pa., Divisions C and D of the Pennsylvania Naval Militia were called out and rendered valuable assistance.

During the hurricane at Galveston, Tex., August 1915, the Texas Naval Militia was called out and although this organization had only just been organized, valuable assistance was rendered.

From August 10 to 16, 1915, the North Carolina Naval Militia participated in a tour of duty at Camp Glen, Morehead City, N. C. Pay, transportation and subsistance were allowed for this tour of duty from Federal funds.

On October 11, 1915, the South Carolina Naval Militia was called out for riot duty in connection with the election primaries in the city of Charleston, S. C.

From September 3 to 7, 1915, the Illinois Naval Militia performed flood relief work on the steamship *Illinois* on the Mississippi river.

Three officers of the Illinois Naval Militia were authorized to take the extension correspondence course at the Naval War College. While this division recommended that a certain number of officers be authorized to take this course, it is not considered advisable that even those officers fully qualified professionally should be allowed to take the course excepting in exceptional circumstances, and this will be the policy of the division in future cases.

F. B. Bassett, Jr.

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